AD-099 317
RIA-81-U470
C-1507

~~CONFIDENTIAL~~
~~SECRET~~

REGRADING DATA CANNOT BE PREDETERMINED

(COPY NO. 48)

Title 21198
Not Full Text

FUZE, VT, T2061 (U)

Group 3 by authority of DD254 on Fuze, VT, M414 (T2061E1) dtd 1/24/66

Regraded Unclassified
By authority of DTIC (AD099317)
Date 5 June 81

USADACS Technical Library
5 0712 01003634 0

AD 099 317

D·O·F·L

TECHNICAL LIBRARY

GROUP 3
DOWNGRADED AT 12 YEAR INTERVALS
NOT AUTOMATICALLY DECLASSIFIED

DESIGN RELEASE
30 JUNE 1955
REPORT TR-185
PROJECT TA3-6102

D. O. F. L.
027259
DOCUMENT CONTROL

TP
293
.037
1955

DIAMOND ORDNANCE FUZE LABORATORIES
ORDNANCE CORPS • • • DEPARTMENT OF THE ARMY

~~CONFIDENTIAL~~
~~SECRET~~

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title 18 U. S. C. 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

TP 293 .037 1955
Oertel, Martin F.
Fuze, VT, T2061
#32553338

ORDNANCE FUZE LABORATORIES

John A. Ulrich, Lt. Col.
COMMANDING

W. S. Hinman, Jr.
TECHNICAL DIRECTOR

The Diamond Ordnance Fuze Laboratories is a Class II Ordnance installation under the Command of the Chief of Ordnance.

The mission of the Laboratories is as follows:

1. Conduct research and development in the various physical science and engineering fields directed toward meeting the military characteristics for fuzes and related items.

2. Provide consulting and liaison services as required in connection with the development, production, and use of items developed in the Laboratories or of related items.

3. Fabricate models and prototypes of items under development at the Laboratories.

4. Perform developmental testing, including destructive testing of prototypes.

The Diamond Ordnance Fuze Laboratories was established by the Ordnance Corps, Department of the Army, on 27 September 1953. The nucleus for these Laboratories was the personnel and facilities of the Ordnance Divisions of the National Bureau of Standards. The Diamond Ordnance Fuze Laboratories is now responsible for the fuze programs formerly conducted at that Bureau.

Typical fields of activity at the Diamond Ordnance Fuze Laboratories include electronics, physics, mechanics, chemistry and applied mathematics. Examples of topics in these activities are radiation and field studies, circuit theory and design, development and engineering of mechanical and electromechanical devices, chemical problems, and special electron tube design. The programs include all phases from basic research to product design.

AD- 099317

SECURITY REMARKING REQUIREMENTS

DOD 5200.1-R, DEC 78

REVIEW ON 30 JUN 75

THIS REPORT HAS BEEN DELIMITED
AND CLEARED FOR PUBLIC RELEASE
UNDER DOD DIRECTIVE 5200.20 AND
NO RESTRICTIONS ARE IMPOSED UPON
ITS USE AND DISCLOSURE.

DISTRIBUTION STATEMENT A

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED.

UNCLASSIFIED

AD 99317

CLASSIFICATION CHANGED
TO UNCLASSIFIED
FROM CONFIDENTIAL
AUTHORITY: HDL, DA ltr,
20 May 80

~~CONFIDENTIAL~~

~~SECRET~~

THIS IS A 87 PAGE DOCUMENT

DIAMOND ORDNANCE FUZE LABORATORIES

DOFL PROJECT 6106

DOFL REPORT TR-185

WASHINGTON 25, D.C.

GROUP-3
DOWNGRADED AT 12 YEAR INTERVALS
NOT AUTOMATICALLY DECLASSIFIED

FUZE, VT, T2061

DESIGN RELEASE

(Ordnance Branch No. TA3-6102)

by: Martin F. Oertel

30 June 1955

This Document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794. The transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law

D • O • F • L

ORDNANCE CORPS • • • DEPARTMENT OF THE ARMY

~~CONFIDENTIAL~~

~~SECRET~~

Approved by:

P. A. Guarino
Chief, Laboratory 20


FUZE, VT, T-208
S.D. ON
S.D. OFF

DEPARTMENT OF

PREFACE

The Design Release describes the T2061 fuze at a stage in its development at which it appears to be capable of meeting the required Military Characteristics. Field evaluation and service-board tests of fuzes built in experimental production should precede release fo full-scale manufacture, design improvements being made if necessary.

Detailed technical information covering the design, development and evaluation of the major subassemblies is presented in the following DOFL reports:

Fuze, VT, T2031E1,* Oscillator - TR-97
Fuze, VT, T2031E1,* Amplifier - TR-98
Fuze, VT, T2061, Battery - TR-186
Fuze, VT, T2061, Safety and Arming Mechanism - TR-187

* The T2061 fuze differs little from the T2031E1 in certain respects. It has therefore been deemed unnecessary to issue separate reports on some T2061 subassemblies.

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

INTRODUCTION

The Design Release for Fuze, VT, T2031E1 for use on the 5-in. HVAR rocket was issued 30 June 1954 together with supplemental technical reports covering the oscillator, amplifier, battery, and safety and arming mechanism. Concurrent with preparation of the design release for the T2031E1, and in anticipation of a requirement that the fuze be operable when mounted on the 5-in. Zuni rocket, an investigation was initiated to determine if a modification of the electronic circuitry of the T2031E1 to adapt it for use with the higher velocity Zuni was feasible. The results of this preliminary investigation indicated that it was feasible to provide a fuze type suitable for use with the Zuni rocket without major redesign, and the nomenclature of T2061 was established for this fuze by OCM Item 35335.

The T2061 fuze was then developed for use on the 5-in. Zuni rocket, primarily for air-to-air application, but also for air-to-ground use. Although not intended for use with the HVAR rocket, the T2061 with the addition of a supplementary booster charge, should perform satisfactorily in air-to-ground applications with this rocket.

This release and referenced reports describe the background, the operation, test results and status of the fuze and its component parts.

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

1. MILITARY CHARACTERISTICS

The military characteristics for the T2061 fuze are defined in OCM Item 35632 dated December 1954. These characteristics and the degree of achievement are presented. The military characteristics are shown underlined at the beginning of each subparagraph.

a. Have the external configuration as shown in DOFL Drawing B300210 (thread size 2.000-12 NS-1RH, maximum intrusion, 2.980 inches).

The external contour of Fuze, VT, T2061 is in accordance with DOFL Drawing B300210 (depicted in Figure 1). It is designed to mount on either the Mk 24 or Mk 25 head for the Zuni rocket (Figures 2 and 3). The T2061 will replace Fuze, VT, M403 on the Mk 6 Mod 4 HVAR head with the addition of an auxiliary booster. The loaded weight of the T2061 fuze is 1195 grams of which 13.4 grams is the tetryl booster.

b. Detonate the warhead in air-to-air applications upon proximity approach to an aircraft under tail-attack conditions (radius of action on B47 type aircraft 30 feet to 45 feet; on fighter type aircraft 15 feet to 25 feet).

The amplifier section of the T2061 fuze has features intended to give controlled positioning of bursts when approaching an air target in tail-chase attack. The evaluation of its performance has been carried out with model-range techniques. The burst positions obtained in simulated tail-on attack on a B29 are described in Report DOFL R21-55-11, those against a Russian MIG-15 fighter in Report DOFL R21-55-9, and against the B47 class plane in Report DOFL R21-55-23 In general, operability is good out to approximately 40 to 50 ft on the B47 and 20 to 30 ft on the MIG-15.

c. Detonate the warhead in air-to-ground applications at a height for maximum casuality effect (tentative height at burst 40 ft ± 20 ft above average ground over a range of approach angles from 10° to 50°).

Typical burst heights over ground (n = 0.75) are shown in Figure 4. The damage effectiveness zones shown are taken from 105-mm howitzer data.

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

d. Provide proper proximity function at a level as nearly 100 percent as practical under conditions of normal use.

(1) in rain, fog or clouds

(2) at altitudes up to 60,000 ft

(3) at aircraft speeds from Mach 0.5 to 1.2

(4) at temperatures from -65°F to +160°F (minimum acceptable -65°F to 125°F)

(5) at relative humidities from 0 percent to 100 percent

(6) when fired from multiple launchers (ripple firing as fast as practical without causing activation of the VT fuze from rocket ahead)

The quality level of the T2061 fuze is expected to exceed 90 percent under all conditions of normal use and under conditions specified except that performance may be adversely affected by ice, rain, snow or some type of clouds. No tests have been made under these conditions and therefore the quality level is unpredictable. Performance should be good over the temperature range from -65°F to +160°F.

e. Embody safety features to insure a minimum safe air travel of 400 ft and withstand approved drop, jolt and vibration testing without becoming armed. The explosive train shall be interrupted in such a manner that initiation of the detonator will not result in initiation of the booster prior to normal arming.

The safety and arming mechanism will insure a minimum safe air travel of 400 ft under all firing conditions of the Zuni rocket. The primary safety latch is not released in less than 400 ft and impacting the rocket in this interval will not cause detonation of the explosive train. The explosive train is interrupted by a barrier plate which is released at the end of burning of the rocket propellant. A limited number of mechanisms have been subjected to drop, jolt, and vibration tests without becoming armed.

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

f. Embody an impact element capable of functioning upon impact in the event that proximity function does not occur.

An impact element is incorporated that will function upon impact with the ground or other object sufficient to cause 100 to 150 g deceleration of the round. The element actuates a stab primer and is independent of the functioning of the electronic and power supply portions of the fuze.

g. Embody maximum protection against enemy countermeasures or other interferences.

Protection from enemy countermeasures and/or other interference is good. There is high protection against noise and sweep jamming while the protection against repeater jamming is believed to be adequate. Extensive operational tests should be made to fully establish susceptibility to countermeasures.

h. Require no arming wire or electrical connections.

No arming wires or electrical connections are necessary.

i. Self-destroy with detonation of the warhead after 6 to 10 seconds of flight. The destruction element shall be simple to remove or inactivate.

A self-destruction element is incorporated which will detonate the booster charge after approximately 10 seconds of flight. It may be inactivated by a quarter turn of a slotted shaft on the side of the fuze prior to inserting the fuze in the round.

j. Be capable of withstanding:

(1) normal rough handling and shipping shocks

(2) normal storage when suitably packaged without impairment of its capabilities, for a maximum period of 10 years (desired goal 20 years).

No tests have been conducted on a packaged fuze to date. In a suitably designed package (hermetically sealed can) no difficulty is

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

anticipated in meeting handling and shipping shocks and storage under extreme weather conditions. The storage life of the battery in the fuze is difficult to predict but it is believed that it and other fuze components can meet the minimum requirement of 10-year storage life.

2. FUZE DESCRIPTION

Fuze, VT, T2061 consists of four functional sections within its encasing hardware (Figure 5): an r-f oscillator, an amplifier and electric firing circuit, a reserve-type battery, and a safety and arming system with associated explosive train.

When the fuzed round is accelerated by the burning of the rocket propellant, the arming mechanism starts its cycle. If acceleration is sustained for the proper time, a firing pin is released to activate the battery. If acceleration continues to a minimum of 400 ft of air travel, the primary latch on the explosive train barrier is released and the fuze is committed to arm. When acceleration decreases at the end of burning, a secondary latch releases the barrier plate and the explosive train is put in line and a short is removed from the electric detonator. The battery, meanwhile, has taken about 0.5 second from initiation to reach full voltage and the oscillator and amplifier attain full sensitivity in another 0.1 second. When the rocket acceleration ceases a deceleration-activated switch in the amplifier section opens and allows a firing capacitor to charge through a resistance. This capacitor is fully charged in 0.1 second after acceleration ceases and the fuze is fully armed.

The fuze employs a loop antenna having a figure-8 pattern with maximum sensitivity normal to the rocket axis. The doppler signal resulting from approach to a target (aircraft or ground) is amplified and applied to an integrating circuit. After a suitable number of cycles a thyratron is fired, discharging the firing capacitor through the electric detonator which in turn initiates the explosive train.

2.1 Oscillator

The T2061 oscillator is of the reaction-grid-detection type using an N67 subminiature triode tube. The antenna used is a single-turn transverse loop which acts both as a magnetic dipole and as the high-Q resonant circuit in a Colpitts type Class C oscillator. This system provides

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

electrical independence of the fuze from the missile and radiation characteristics suitable for use in both air-to-air and air-to-ground applications.

The T2061 oscillator is identical with that used in the T2031E1 fuze which is described in full in DOFL Report TR-97.

2.2 Amplifier

The T2061 amplifier (the FLAF7) is a differential-integrator type designed to respond to the manner in which the amplitude, frequency and envelope rise time of the doppler-signal are interrelated. The circuit provides burst positioning for air-to-air application, control of burst height in air-to-ground use, and immunity to noise and interfering signals. The unit performs electrical arming as well as the fuze sensitizing functions.

The design of the FLAF7 amplifier is very similar to that of the FLAF6 used in the T2031E1 fuze, which was covered in detail in DOFL Report TR-98. The two are schematically the same. For the Zuni application, however, the integration time delay was reduced, and the cut-off frequency of the first amplifier stage was increased to provide proper operation at the higher rocket velocity.

Model-range evaluation of the FLAF7 indicates good burst positions out to 50 ft against a B29 and to about 20 ft against a MIG-15. Data on function heights in air-to-ground application are shown in Figures 4 and 6.

The T2061 circuit diagram and component values along with graphs showing technical details of amplifier performance are given in Appendix A, page 41.

2.3 Battery

The T2061 battery (Figure 7) is of the thermal reserve type comprising separate A, B, and C sections capable of operating over a temperature range of -65° to +160°F. The sections are made up of individual cells composed of metal electrodes and solid salt electrolytes, the latter becoming molten from heat supplied by a pyrotechnic composition

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

surrounding the cells. The battery is initiated by a percussion-type primer, which is set off by an explosive-activated striker in the arming mechanism.

The background, design criteria, and and performance characteristics of the T2061 battery together with the results of laboratory tests are described fully in DOFL Report TR-186. The unit is an advanced version of the T2031E1 battery, with improved over-all performance and increased producibility and reproducibility. In general, the activation times, life and noise now fall consistently within the acceptable ranges. Typical voltage output curves are shown in Figure 8.

The over-all improvement in the T2061 battery over the T2031E1 battery is attributable to a series of refinements in materials, processing, and design. The major design changes are two: the individual B cells are now formed into a continuous spiral rather than in the layers of rings that required interconnecting welds; and the size of all the cells have been reduced permitting the use of more thermal insulation.

2.4 Safety and Arming Mechanism

The T2061 safety and arming mechanism (Figure 9) is a self-contained unit (no arming wires required) that operates only on the setback forces characteristic of the rocket. The unit is an acceleration integrating device that provides initiation of the VT power supply and arms on the deceleration at the end of rocket propellant burning. An independent self-destruction element and an impact element are included.

The background, design criteria and physical characteristics of the T2061 safety and arming mechanism together with the results of tests are covered in detail in DOFL Report TR-187. The T2061 safety and arming mechanism is a revision of the T2031E1 mechanism, and operates equally well in Zuni and in HVAR rockets. The inherent safety feature that causes the unit to fail safe if parts of the delay train are damaged or missing has been retained.

The major improvements in the present mechanism include the use of a rotor barrier, which replaces the shutter barrier of the T2031E1 mechanism; a one-piece aluminum main frame plate and

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

detonator block instead of the two-piece brass and steel unit; and an assembly clip to hold battery and mechanism together. During the development a comprehensive engineering study resulted in relaxed tolerances, use of less critical material, and simplification of fabrication. The unit therefore lends itself more readily to production techniques.

In the final testing of 180 fuzed rounds, only one malfunction occurred that could be attributable to the safety and arming mechanism.

2.5 Over-all Assembly

The design of the T2061 fuze case hardware and details of assembly on the complete fuze are covered in Report DOFL R22-55-9. Briefly the over-all assembly which is very similar to that of the T2031E1 fuze is as follows:

The contour is that shown in Figure 1. For interchangeability with the M403 for HVAR application the T2061 booster can be replaced by one of sufficient size to fill the cavity of the Mk 6 Mod 4 head.

The case hardware permits disassembly and reassembly without the use of machine tools or destruction of any major parts. The fuze assembly is shown in cross-section in Figure 10.

3. TEST EQUIPMENT

The set of test equipment recommended for use on the T2061 is identical with that for the T2031E1 fuze. A list of the Emerson Test Manuals covering these equipments is given in Appendix B.

4. FIELD PERFORMANCE

Field tests of the T2061 fuze were conducted during the period February 1955 through June 1955, except for one earlier test fired in May 1954. Some 294 fuzes built by Emerson and DOFL were fired in HVAR and Zuni rockets -- 23 launched from the ground at Blossom Point Proving Ground and the remainder from B26 and F80 planes at Aberdeen Proving Ground. The rounds had FLAF7 amplifiers, were powered by Pass and Seymour batteries, and used General Sintering

This document contains information effecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

Company or Hamilton Mod 1 arming mechanisms. (The May 1954 test rounds had Catalyst reserve batteries and Raymond arming mechanisms.)

The detailed results are given in Table 1.

Discussion of Score

Based on the over-all results, there is a significant difference between the percentage of heard duds (0.0%) with fuzes having 0.005-in. thick or punctured diaphragms and that (9.1%) of fuzes having 0.015-in. thick diaphragms, indicating that at least some of the incidence of heard duds is attributable to failure of the tetryl lead to initiate the booster through the 0.015-in. diaphragm. Within each of the above groups, there is no significant difference between the percentage of proper functions with respect to arming mechanism, fuze manufacturer, rocket, launching (air vs ground), or approach (water vs target). The over-all percentages are as follows:

Diaphragm	No. of Rounds	Pw	I	E	M	HD	NHD
0.015 in.	66	81.8	0.0	6.1	1.5	9.1	1.5
0.005 in. or punctured	228	93.0	0.9	4.0	0.4	0.0	1.8

There is 99 percent assurance that the sample of fuzes with 0.005-in. thick or punctured diaphragms came from a population having a proper function score between 86 and 97 percent.

The T2061 function heights are reasonably consistent within all ground-launched rocket tests, there being no signficant differences in heights due to fuze manufacturer or type rocket from a damage effectiveness viewpoint. The over-all average height for 137 proper functions over water is about 30 ft with a standard deviation of about 7 ft.

The results to date are insufficient to yield a reliable estimate of the radius of action of the T2061 fuze against the B17 target.

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

The results of the limited train firing of rockets were satisfactory. Separate trains of 3, 7 and 11 rockets were released in 0.1-sec intervals with all rounds functioning properly.

5. FUTURE CONSIDERATIONS

Further evaluation and some modification of this fuze are still required:

1) Tests should be made to establish fuze performance at the required temperature extremes and in inclement weather.

2) A study should be made to determine the necessary change in circuitry to effect an improvement in burst positions against the smaller aircraft.

3) The A and C voltages should be optimized in terms of the fuze requirements (Report TR-186).

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U.S.C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

Table 1. T2061 Field Tests.

Ground-Launched Rockets

Test	Report	Date	Arming	Diaphragm (in.)	Rocket	QE (deg)	N	P	I	E	M	HD	NHD	$\bar{H}$ (ft)	%P
DOFL Fuzes Fired for Water-Approach Function															
RX-T2061-1	23.5-34R	5/11/54	Raymond	0.015	ZUNI	15	8	8	0	0	0	0	0	26	100
-2	R23-55-17	2/16/55	GSC	0.015	ZUNI	15	24	17	0	3	0	3	1	38	71
-2S	-17	2/24/55	GSC	0.015	HVAR	18	10	8	0	1	1	0	0	38	80
-6	-27	4/6/55	Hamilton	Punctured	HVAR	18	20	17	0	2	0	0	1	26	85
Emerson Fuzes, Fired for Water-Approach Function															
RX-T2061-3	R23-55-18	3/3/55	GSC	0.015	HVAR	18	24	21	0	0	0	3	0	27	88
-5	-27	3/30/55	GSC	Punctured	HVAR	18	30	30	0	0	0	0	0	28	100
-6	-27	4/6/55	Hamilton	Punctured	HVAR	18	20	18	0	1	1	0	0	29	90
-7	-27	4/20/55	Hamilton	Punctured	HVAR	18	20	19	0	1	0	0	0	28	95
-7	-27	4/20/55	Hamilton	Punctured	ZUNI	12	17	16	0	1	0	0	0	33	94
Emerson Fuzes, Fired for Target Function															
RX-T2061-4	R23-55-21	3/17/55	GSC	Punctured	HVAR	--	40	39	0	0	0	0	1	40*	98
-11	-36	5/11/55	Hamilton	0.005	HVAR	--	10	8	2**	0	0	0	0	30*	80

Air-Launched Rockets

Test	Report	Date	Arming	Diaphragm (in.)	Rocket	Release Speed (mph)	Release Alt (ft)	N	P	E	NHD	$\bar{H}$ (ft)	%P
Emerson Fuzes, Fired for Water-Approach Function													
RX-T2061-8	R23-55-37	5/5,9/55	GSC	0.005	HVAR	300	2200	28	22	4	2***		79
-8	-37	5/18,24/55	Hamilton	0.005	HVAR	500	3500	22	22	0	0		100
-12	-38	5/23/55	Hamilton	0.005	HVAR	500	5000	21****	21	0	0		100

*Av Impact Parameter (Distance of function from target center in the plane perpendicular to target axis and containing the target center.)
**Impact functions with ground -- beyond target.
***Very wild flight on one dud round.
****Automatic (rapid fire, 1/10-sec interval) release in groups of 3, 7 and 11 rounds

N(Number) - Total number of rounds fired.
P(Proper Function) - Function near the expected height.
I(Impact Function) - Function on impact.
E(Early Function) - Function before 10 sec.
M(Midfunction) - Function after 10 sec but appreciably higher than the expected height.
HD(Heard Dud) - No function but carrier received by monitoring station.
NHD(Not-heard Dud) - No function and no carrier received.

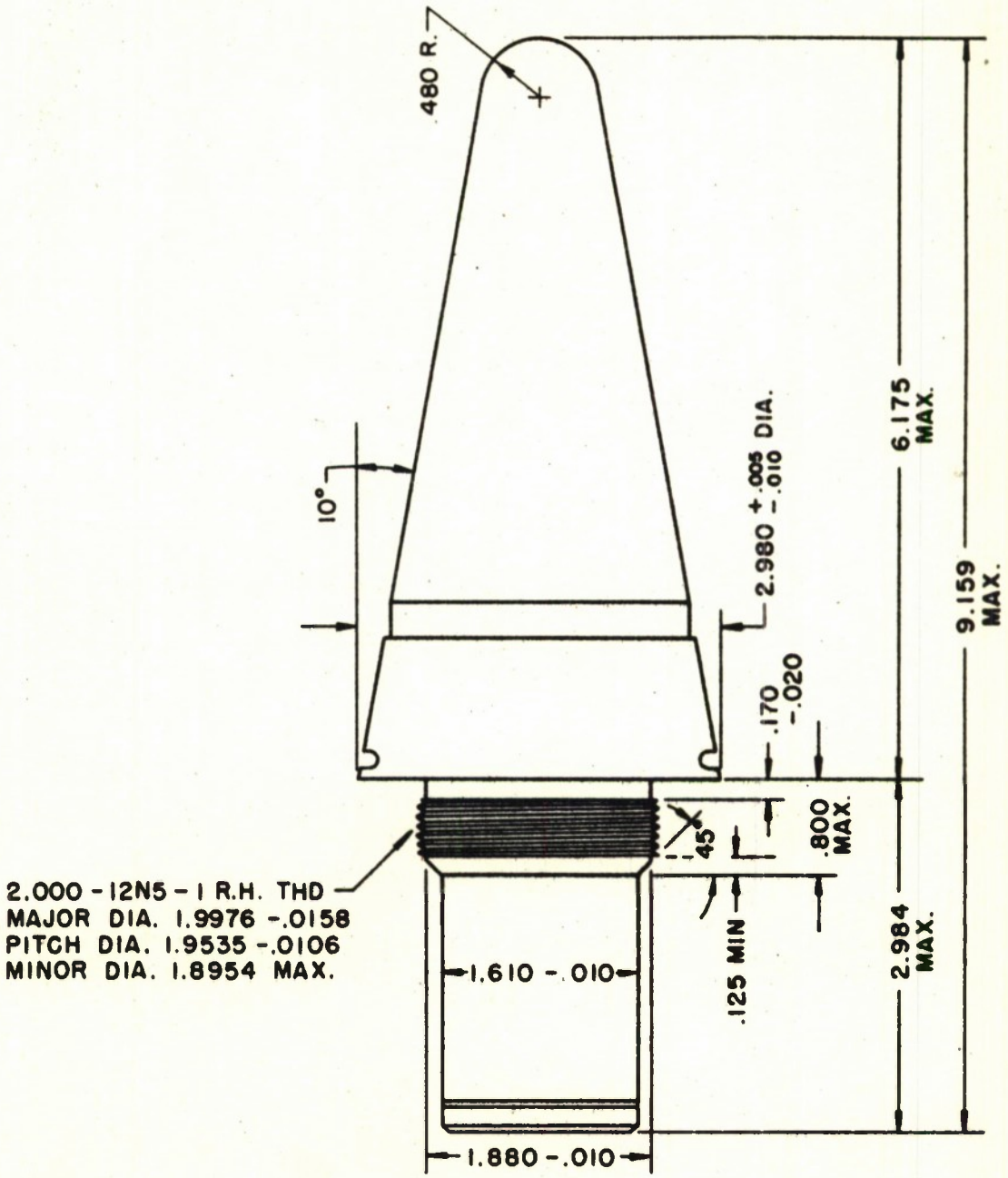


Figure 1. Fuze, VT, T2061 contour.

Figure 2. Fuze, VT, T2061,Mark 24 and 25 rocket heads for Zuni.

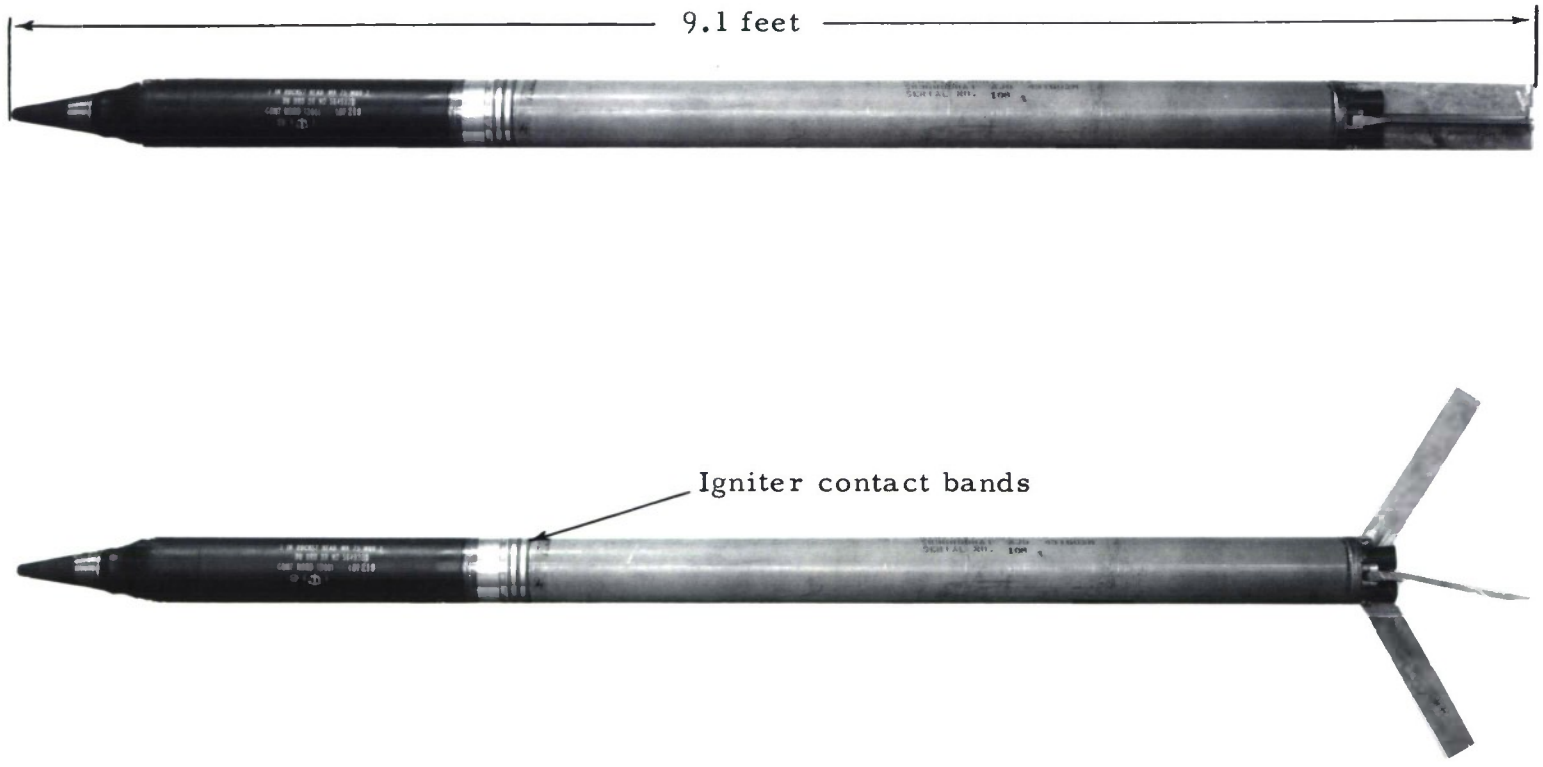


Figure 3. Fuze, VT, T206l, on Zuni, with Mk 25 head.

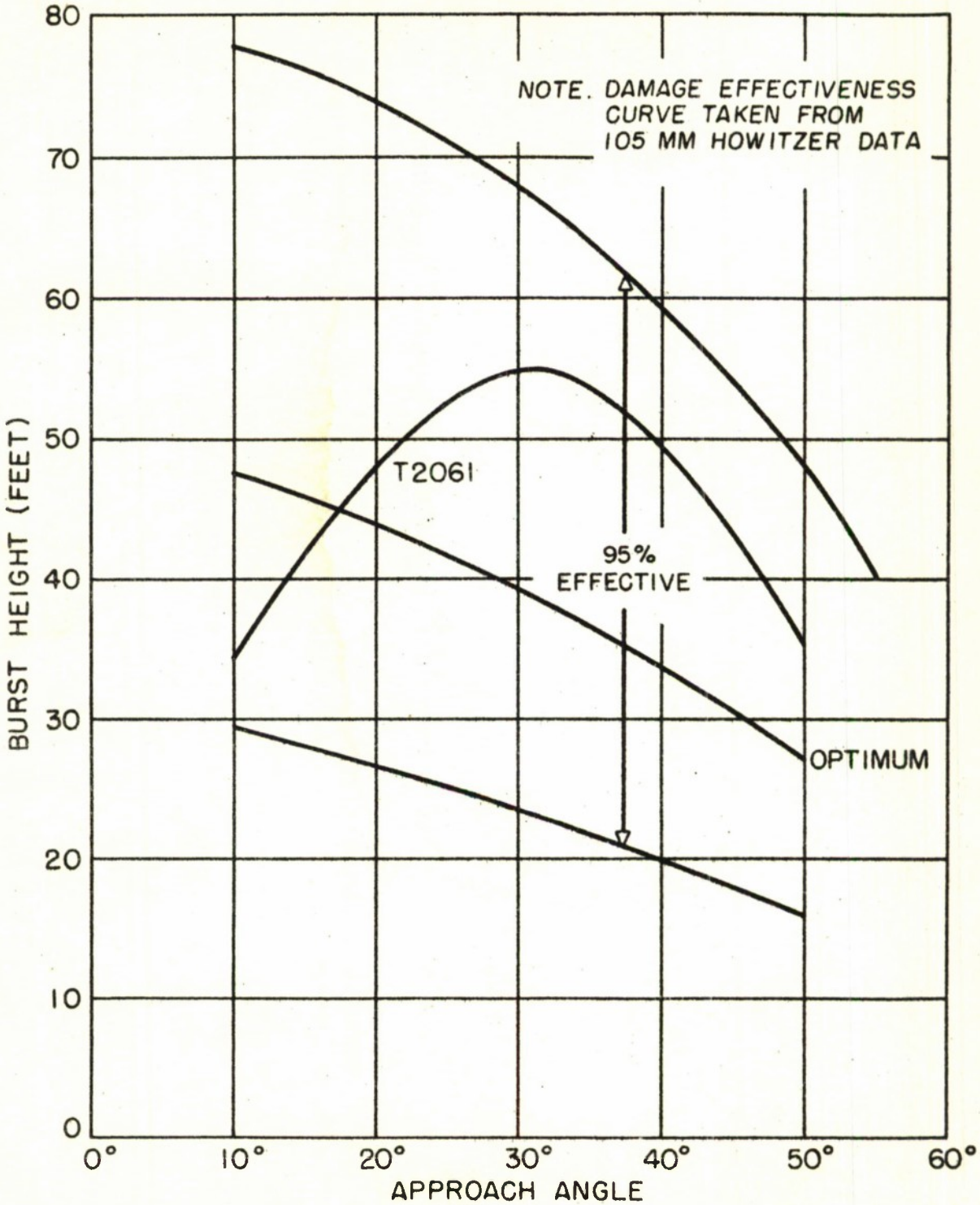


Figure 4. Fuze, VT, T2061 air-to-ground performance (N=.75)

Figure 5.Fuze, VT, T206l, Layout of components.

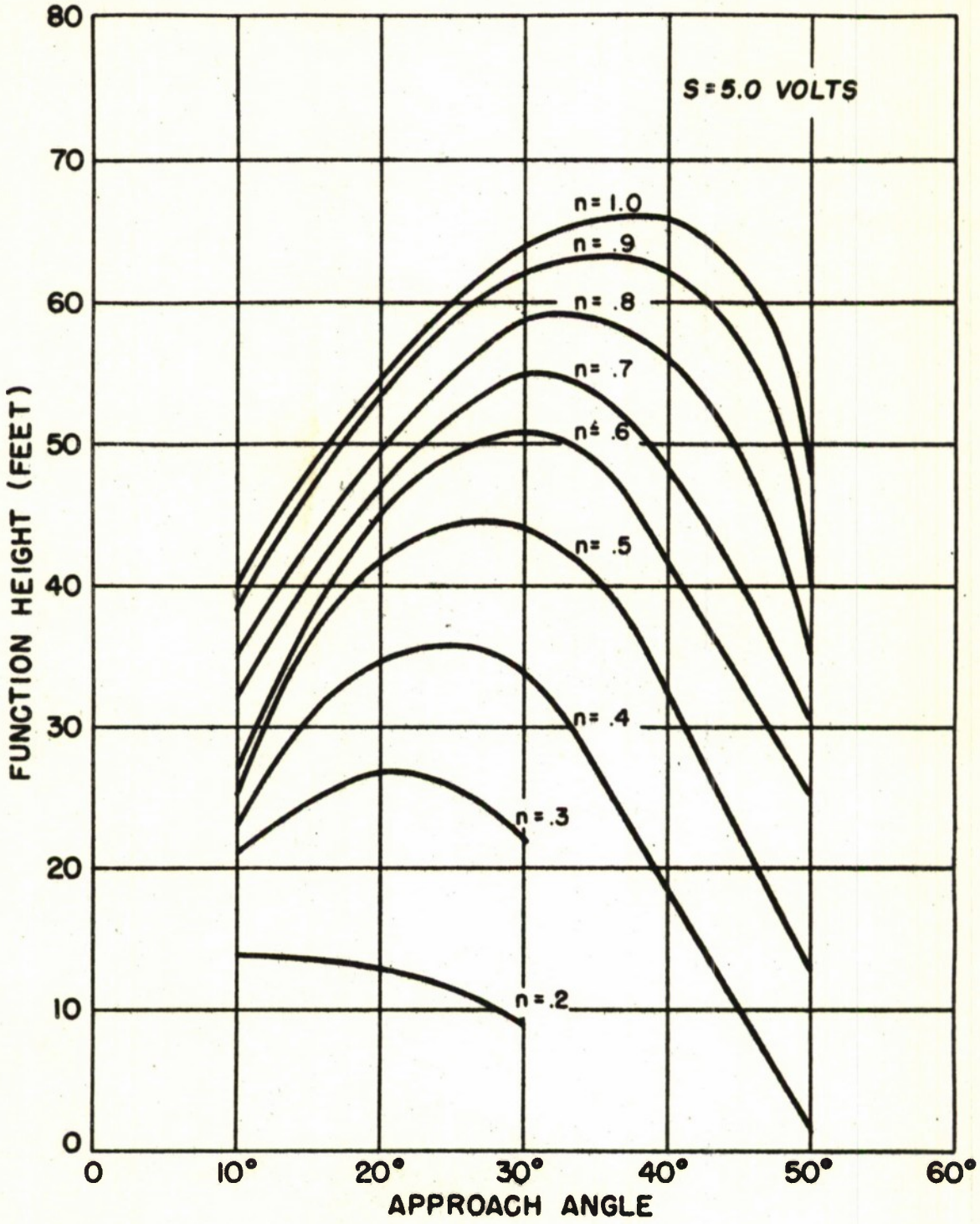


Figure 6. Fuze, VT, T2061. Function height vs approach angle.

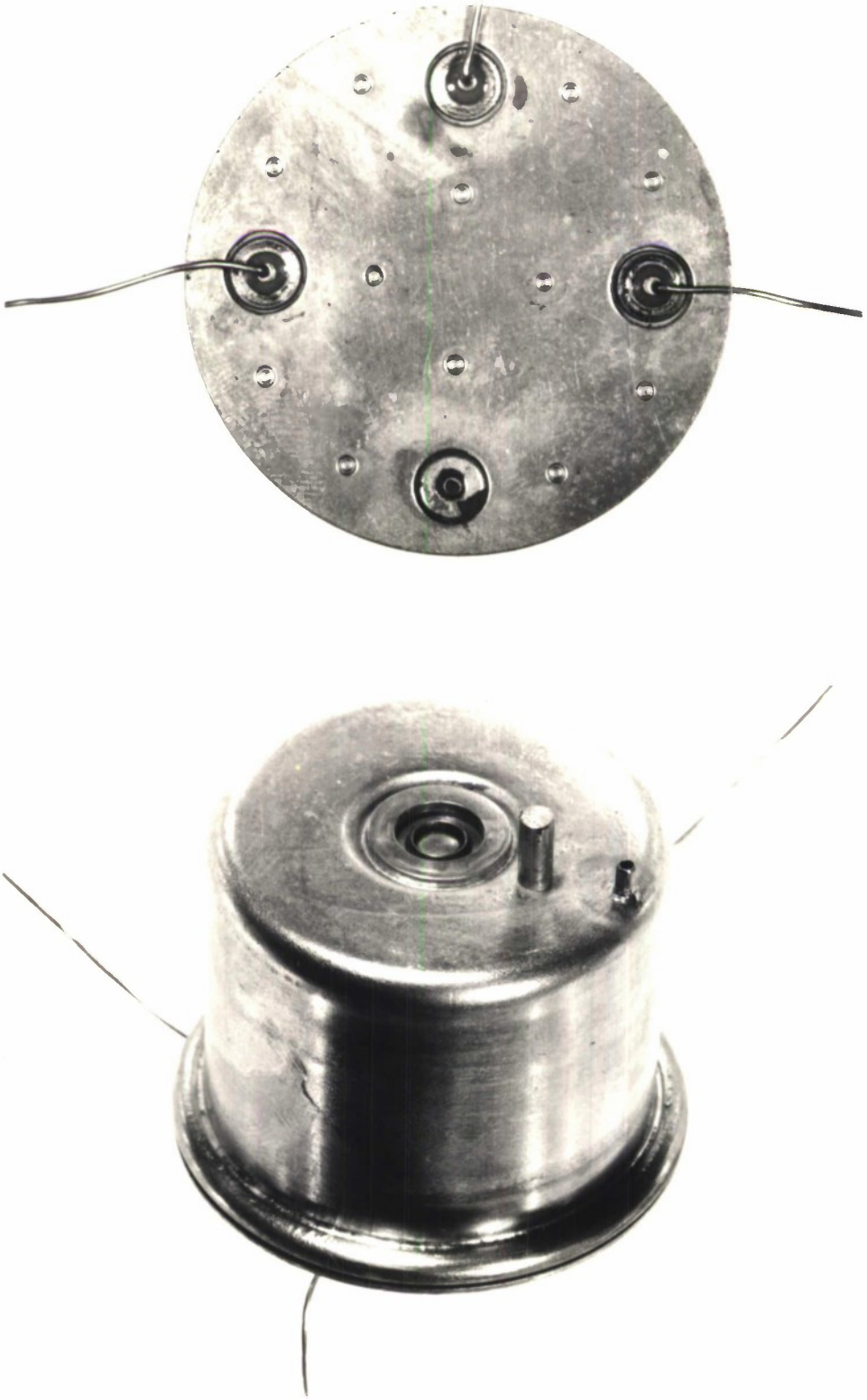


Figure 7. T2061 Power supply.

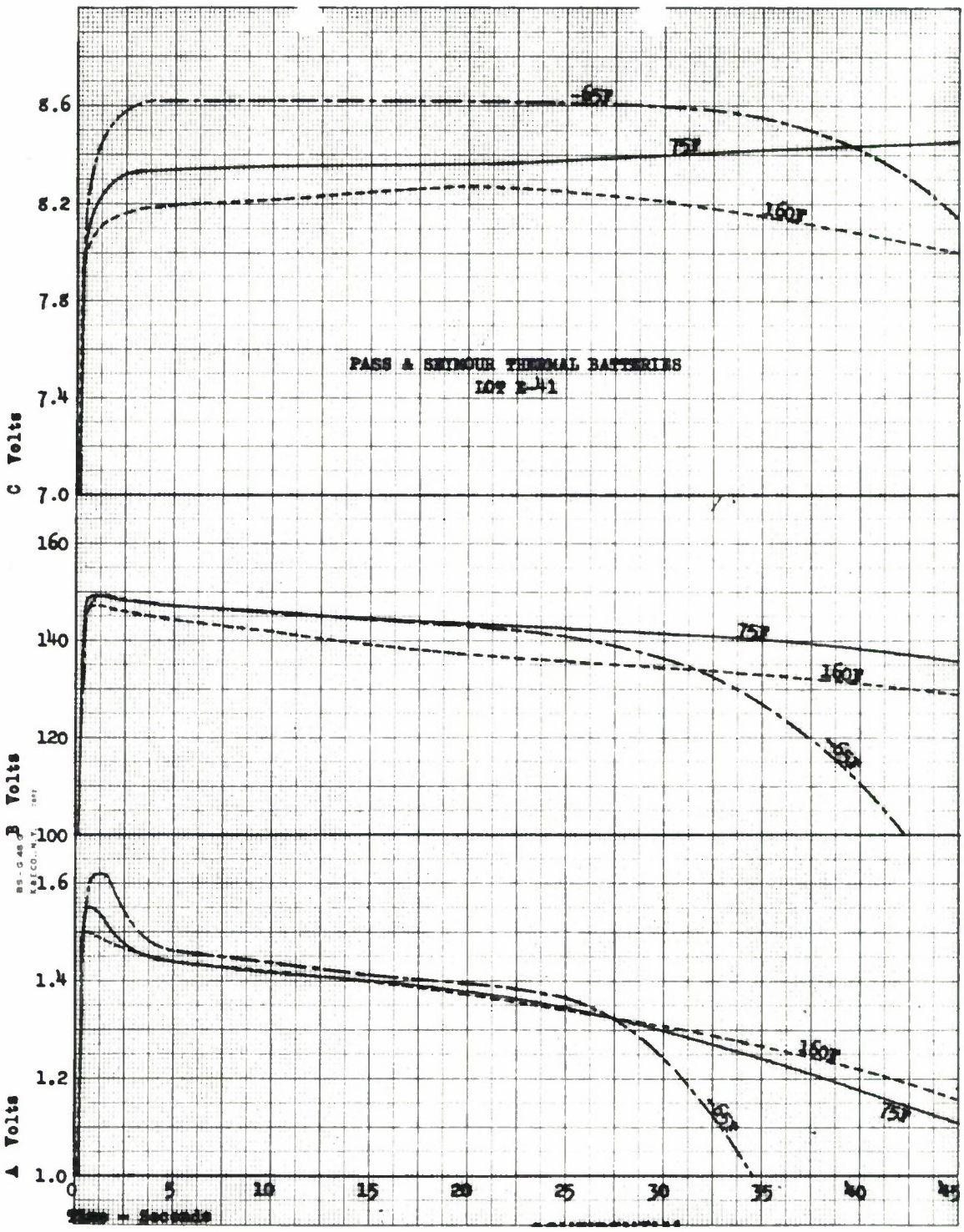


Figure 8. Average voltage curves, T2061 batteries.

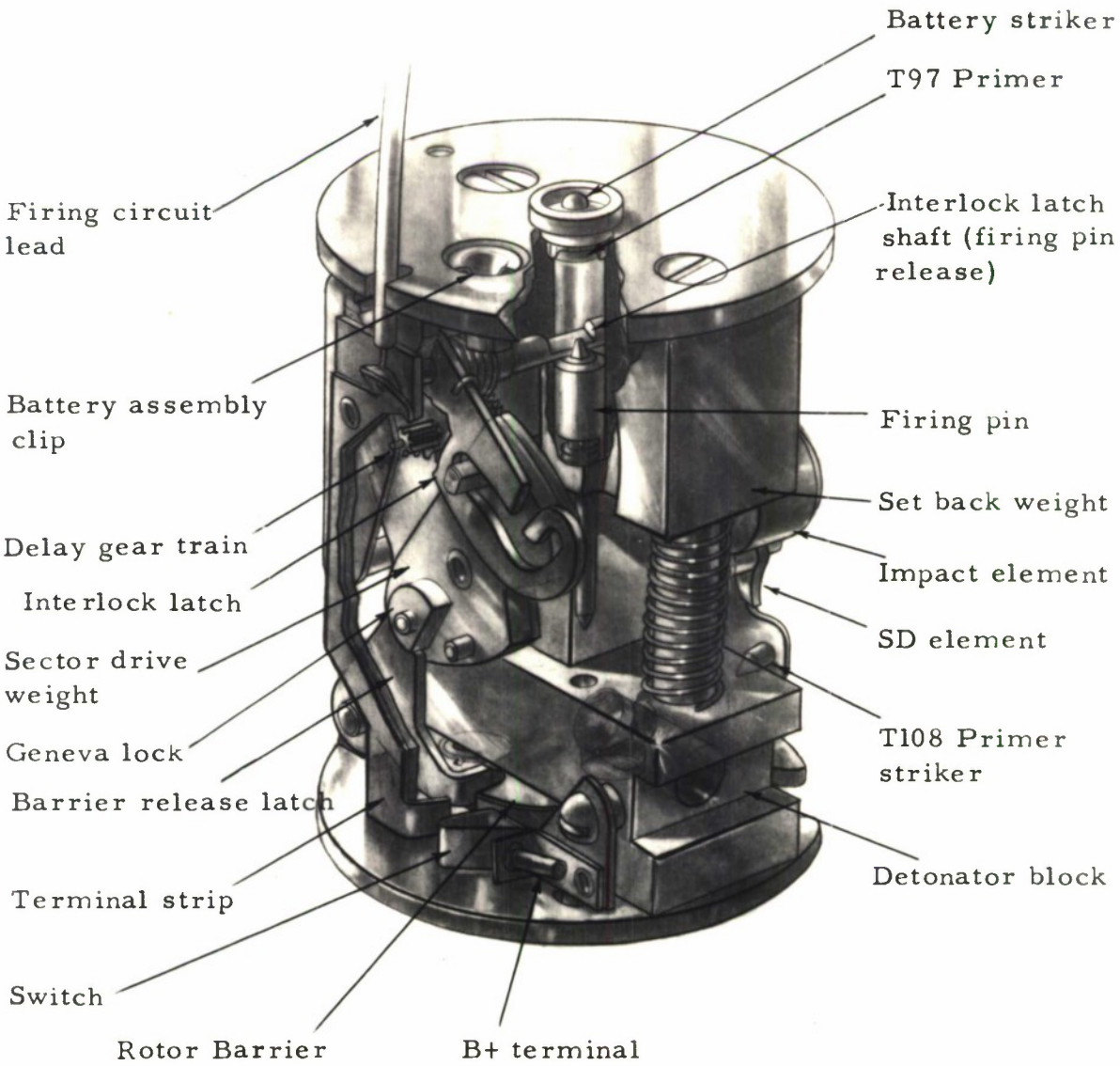


Figure 9. T206l Safety and arming mechanism.

DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS CORPS
11023

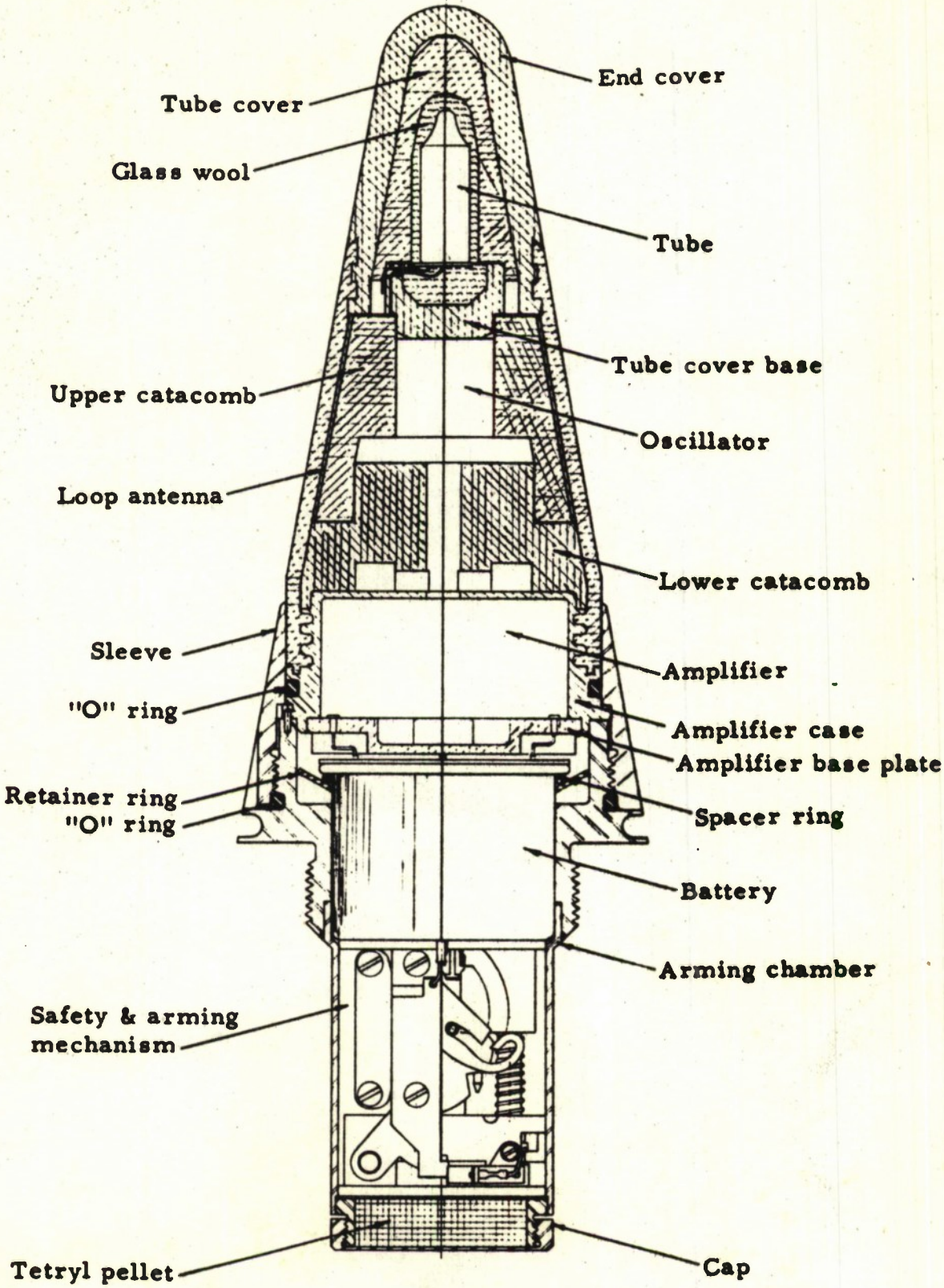


Figure 10. Fuze, VT, T206l, cross section.

BIBLIOGRAPHY

DOFL Reports:

TR-96 — Fuze, VT, T2031E1, Design Release, (including complete Bibliography, p. 57-65) 30 June 1954 - J. W. Fraumann

TR-186 — Fuze, VT, T2061, Battery (Design Release) 1 July 1955 - J. Hoke and G. L. Scillian

TR-187 — Fuze, VT, T2061, Safety and Arming Mechanism (Design Release) 1 July 1955 - Roland A. Ebner

R22-55-9 — Structural Components of the T2061 Fuze, Roland A. Ebner

R21-55-9 — Operation of the T2061 Rocket Fuze with FLAF7 Amplifier in Simulated Tail-On Approach to a Russian MIG-15 Fighter, 14 February 1955 - W. L. Gieseler

R21-55-11 — Operation of the T2061/FLAF7 Rocket Fuze in Simulated Tail-On Approach to a B29 Bomber, 16 March 1955 - W. L. Gieseler

R21-55-22 — Tentative Specifications for Fuze, VT, T2061, M. F. Oertel

Airborne Instruments Laboratory Reports:

T/M2016 — Technical Memoranda - File 2016 CM Susceptibility Test on the T2031E1 Fuze (Preliminary Data), 10 June 1954 - M. Natchipolsky

2016-T-21 — Test Report on the Susceptibility to CM of the T2031E1 Fuze , May 1955 - M. Natchipolsky and A. M. Levine

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

Emerson Radio and Phonograph Corporation Reports:

Special Report No. 3	Tolerance Study of FLAF-7 Amplifier, 3 January 1955 - M. S. Berkoff
Special Report No. 4	Test Procedures of T2061, 29 June 1955 - M. S. Berkoff

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

CONFIDENTIAL
SECRET

APPENDIX A

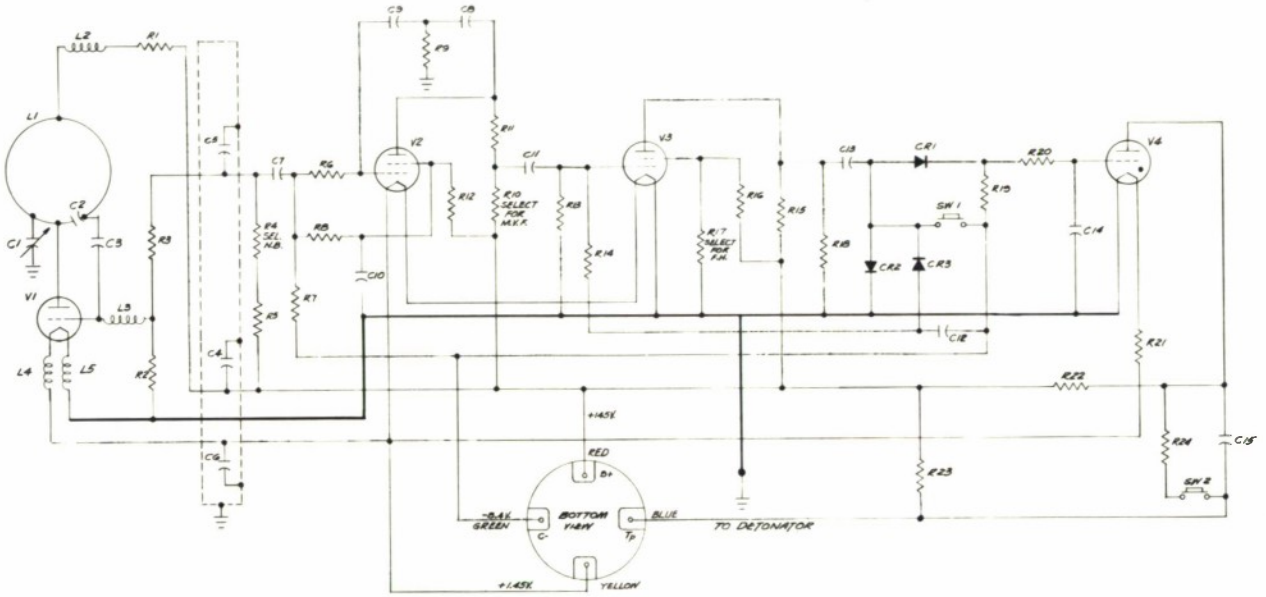
T2061 CIRCUIT DIAGRAM

AND

SUPPLEMENTARY DATA ON PERFORMANCE

CONFIDENTIAL
SECRET

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



PART	DESCRIPTION	REFERENCE
R1	1 k ± 5%	B-300,231-1
R2	47 k ± 5%	B-300,231-2
R3	150 k ± 5%	B-300,231-3
R4	0 - 200 k Select For Noise Buck	B-300,233-1
R5	220 k ± 10%	B-300,233-2
R6	1.0 meg. ± 10%	B-300,233-3
R7	3.3 meg. ± 10%	B-300,233-4
R8	10.0 meg. ± 10%	B-300,233-5
R9	330 k ± 10%	B-300,233-6
R10	510 k - 750 k Select For mvf.	B-300,233-7
R22	820 k ± 10%	B-300,233-8
R12	10.0 meg. ± 10%	B-300,233-9
R13	3.3 meg. ± 5%	B-300,233-3
R14	10.0 meg. ± 5%	B-300,233-10
R16	220 k ± 10%	B-300,233-2
R16	82 k ± 10%	B-300,233-11
R17	13 k - 27 k Select For f.h.	B-300,233-12
R18	820 k ± 10%	B-300,233-8
R13	3.3 meg. ± 5%	B-300,233-3
R20	300 k ± 5%	B-300,233-13
R21	1.0 ohm ± 10%	A-300,451-1
R22	2.2 meg. ± 10%	B-300,233-14
R23	10 meg. ± 10%	B-300,233-15
R24	4.7 k ± 20%	B-300,233-16

PART	DESCRIPTION	REFERENCE
C1	Mechanical Adj. For Loop Balance	A-300,435
C2	Part of L1	C-300.441
C3	22 mmf. ± 10% 300 v.	A-300,444-1
C4	300 mmf. ± 20%	B-300,170
C5	300 mmf. ± 20%	B-300,170
C6	300 mmf. ± 20%	B-300,170
C7	.0027 mfd. ± 10% 100 v.	B-300.233-2
C8	47 mmf. ± 10% 300 v.	A-300,444-3
C9	27 mmf. ± 10% 300 v.	A-300,444-2
C10	.0047 mfd. ± 10% 100 v.	B-300,233-2
C11	.0027 mfd. ± 10% 200 v.	B-300,233-4
C12	.033 mfd. ± 10% 200 v.	B-300,232-1
C13	.5027 mfd. ± 10% 200 v.	B-300,233-4
C14	.022 mfd. ± 5% 100 v.	B-300,233-3
C15	.03 mfd. ± 20% 200 v.	B-300,232-2

PART	DESCRIPTION	REFERENCE
V1	M47	A-300,437
V2	6N09 1A	A-506,287
V3	6N05 1A	A-300,287
V4	6N09 2A	A-300,452
CR1	DIODE	A-506,171
CR2	DIODE	A-300,171
CR3	DIODE	A-300,171
L1	LOOP	C-300,441
L2	1 mh	B-300,232
L3	1 mh	B-300,232
L4	1 mh	B-300,232
L5	1 mh	B-300,232
SW1	BALL SWITCH	B-300,493
SW2	BALL SWITCH	B-300,493

Figure A1. Fuze, VT, T2061, circuit diagram.

039270

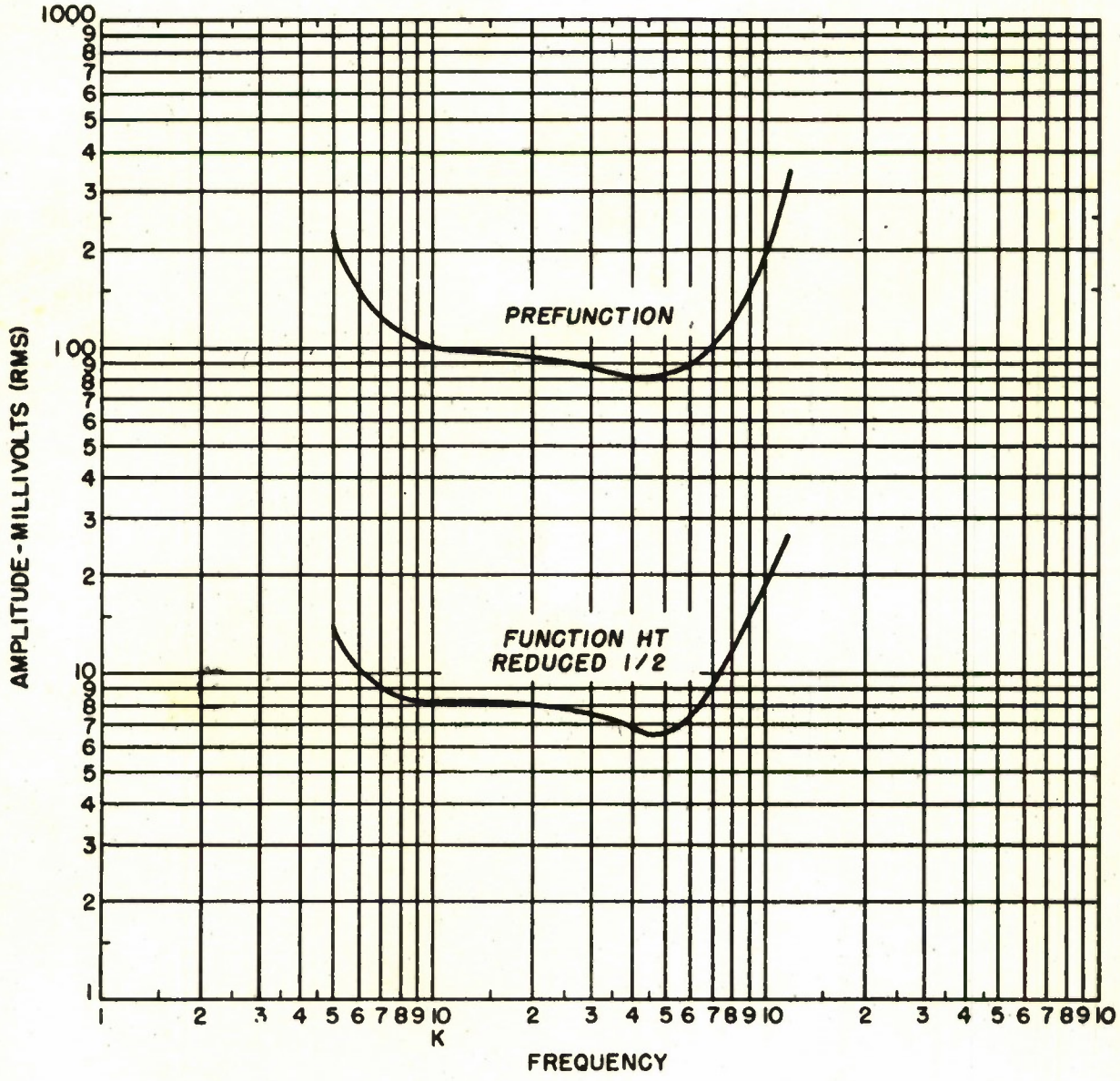


Figure A2. Fuze, VT, T2061, effect of steady state sine wave interference upon function height for 30° air-to-ground approach.

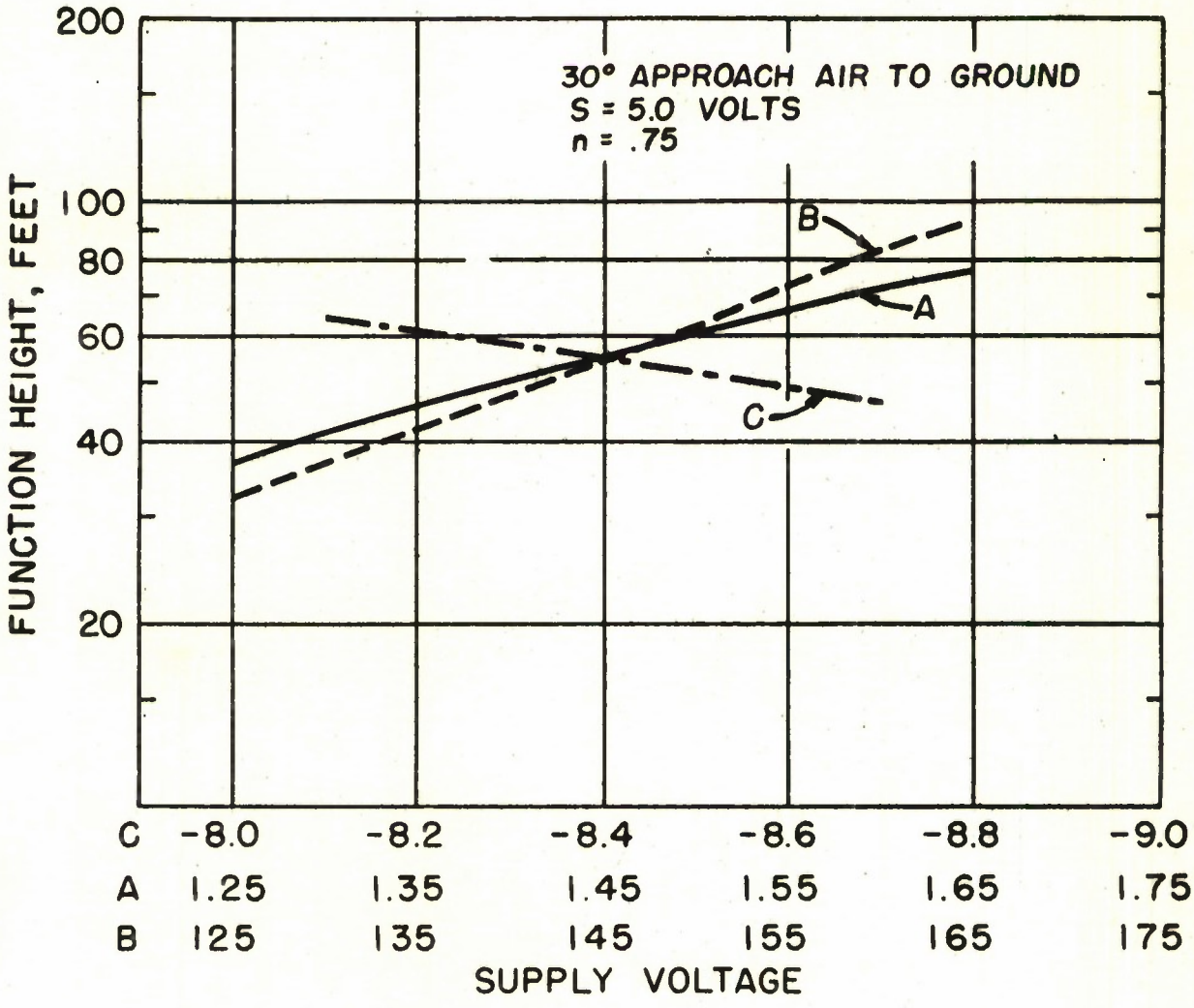


Figure A3. T2061 Amplifier, effect of supply voltage variation upon height.

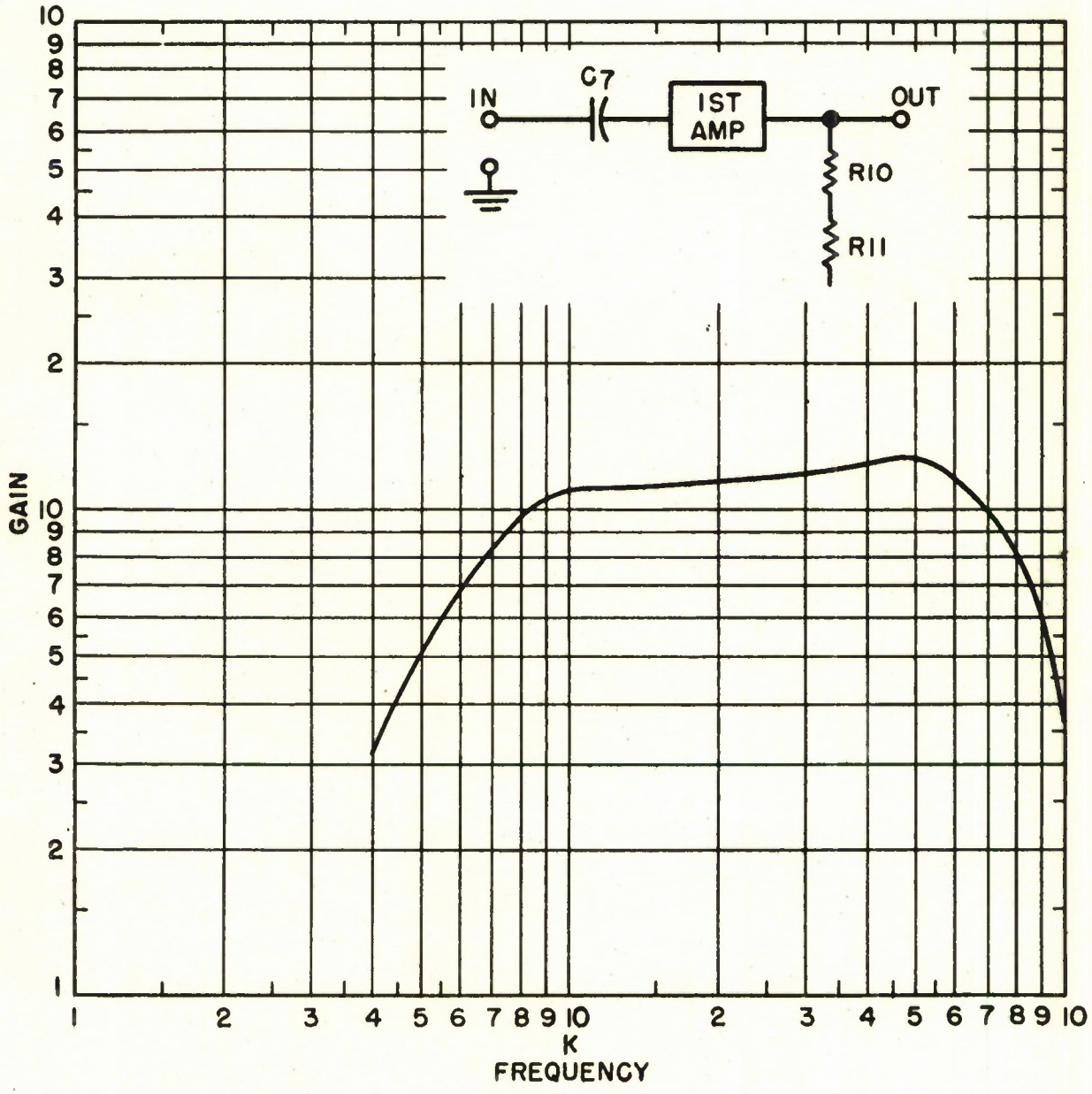


Figure A4. T2061 Amplifier, typical frequency response of first stage.

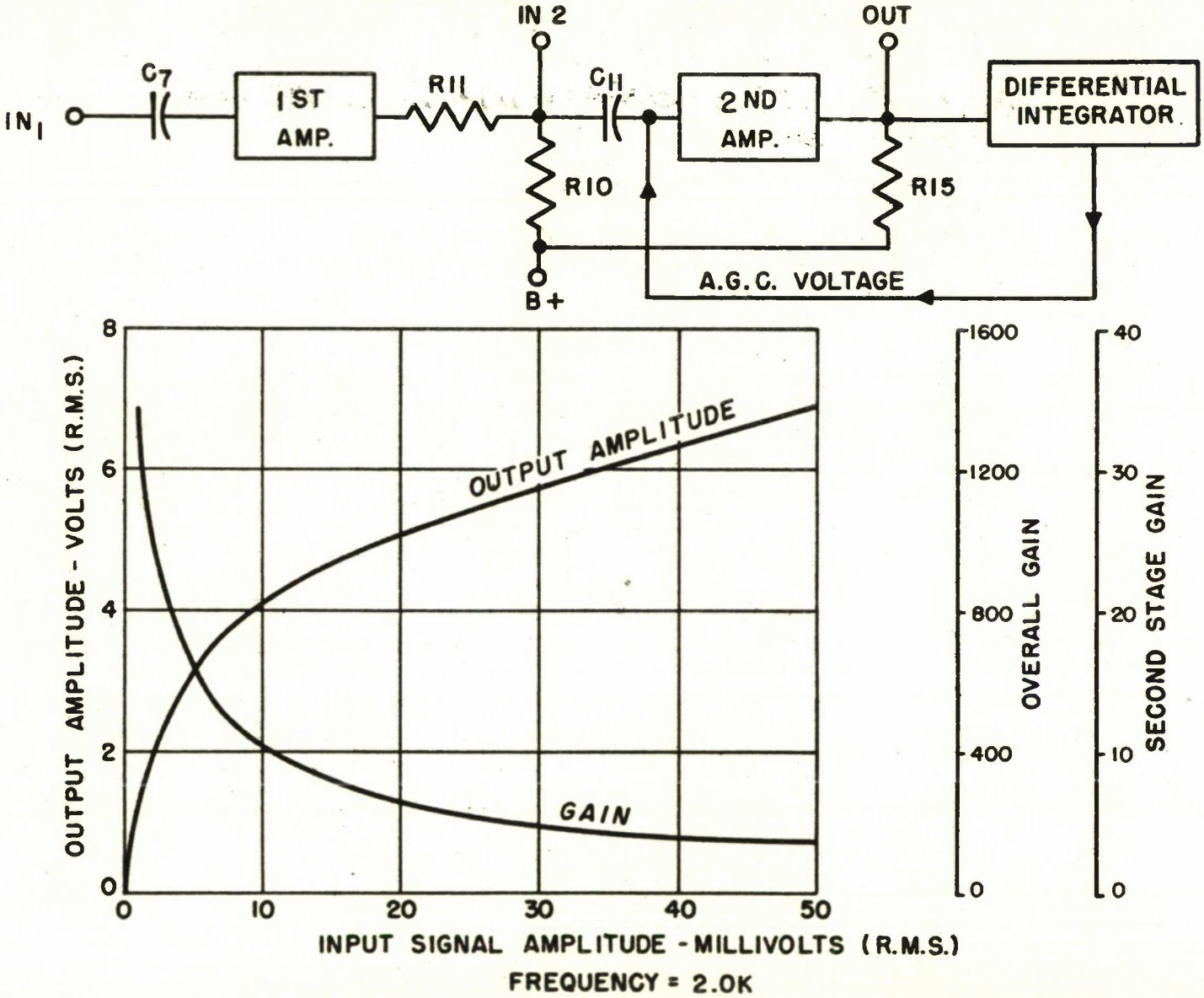


Figure A5. T2061 Amplifier over-all gain and output voltage vs input signal.

CONFIDENTIAL

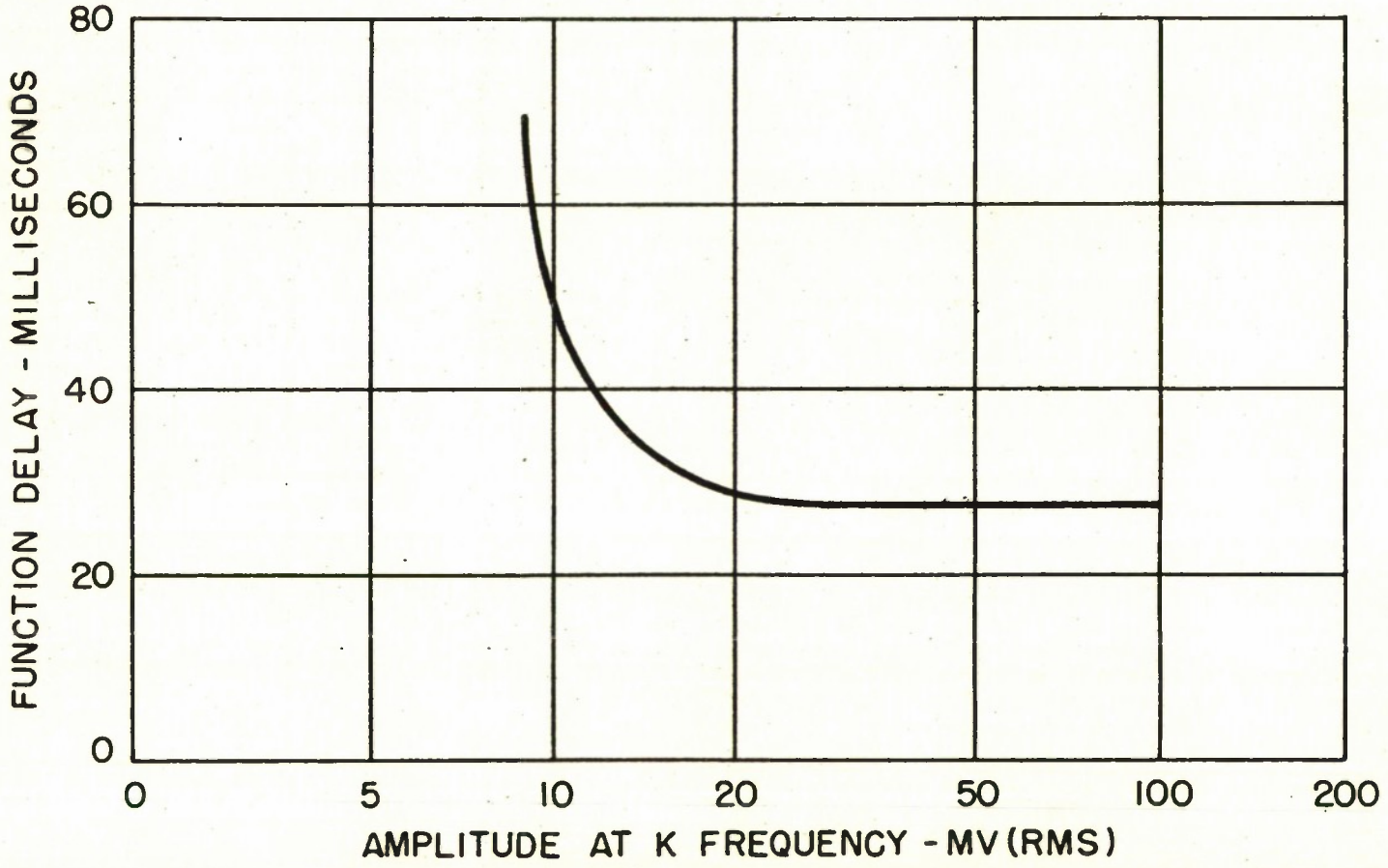


Figure A6. T2061 Amplifier, function delay vs amplitude for sine-wave bursts.

CONFIDENTIAL

CONFIDENTIAL

APPENDIX B

EMERSON TEST MANUALS

Amplifier Tube Tester	EG812
Thyratron Tube Tester	EG822
Diode Tester	EG787
Tube Microphonics Tester	EG254
Resistor Noise Tester	EG794
N67 Self-Noise Tester	EG986
Amplifier Test Position	EG1345
Final Test Position	EG1349
Oscillator Test Position	EG1342

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

APPENDIX C

LIST OF DRAWINGS AND PARTS

OF

FUZE, VT, T2061

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

~~CONFIDENTIAL~~

~~SECRET~~

~~CONFIDENTIAL~~

~~SECRET~~

SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300,481
SHEET 1 OF 1 SHEETS

ORIGINAL DATE:
31 MAY 1955

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: FUZE, T2061
MASTER INDEX

DRAFTSMAN	CHECKER
PROJ. ENGR.	PROJ ENGR
SUBMITTED BY	CHIEF SEC
EXAMINED BY	CHIEF ENGR
APPROVED BY	CHIEF DIV

REVISIONS

NO	SHEET	DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASS'Y.	NUMBER REQUIRED TOTAL	REMARKS
1	B-300,466	T-2[illegible] DETONATOR LIST OF DWGS.			CONFIDENTIAL
2	B-300,[illegible]	T-[illegible]8 STAB PRIMER LIST OF DWGS.			CONFIDENTIAL
3	B-300,482	OSCILLATOR - AMPLIFIER LIST OF DWGS.			SECRET
4	B-300,483	BATTERY LIST OF DWGS.			CONFIDENTIAL
5	B-300,484	SAFETY & ARMING MECHANISM LIST OF DWGS.			CONFIDENTIAL
6	B-300,485	ARMING CHAMBER LIST OF DWGS.			UNCLASSIFIED
7	B-300,486	T-97 STAB PRIMER LIST OF DWGS.			UNCLASSIFIED
8	B-300,487	LEAD CHARGE LIST OF DWGS.			UNCLASSIFIED
9	D-300,488	GENERAL ARRANGEMENT			SECRET
10	D-300,489	GENERAL ASSEMBLY			SECRET
11	B-300,424	BOOSTER PELLET			UNCLASSIFIED
12	B-300,403	BALL SWITCH LIST OF DWGS.			UNCLASSIFIED
13	B-300,434	SPECIAL TOOLS FOR T-2061 FUZE LIST			UNCLASSIFIED
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

NOTES:

~~CONFIDENTIAL~~

~~SECRET~~

SECRET
CONFIDENTIAL

CONFIDENTIAL
SECRET
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300482
SHEET 1 OF 2 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

ORIGINAL DATE: 30 JUNE 1955

FOR: OSCILLATOR - AMPLIFIER ASSEMBLY

DRAFTSMAN	CHECKER
PROJ. ENGR.	PROJ ENGR
SUBMITTED BY	CHIEF SEC.
EXAMINED BY	CHIEF ENGR.
APPROVED BY	CHIEF DIV.

REVISIONS: NO. | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1	D-300,622	CIRCUIT DIAGRAM T-2061			
2	D-300,623	TEST & ASSEMBLY CHART -- T-2061			
3	A-300,170	FEED THRU CAPACITOR		3	
4	B-300232-1	CAPACITOR SPECIFICATION		1	
5	B-300232-2	CAPACITOR SPECIFICATION		1	
6	B-300233-1	RESISTOR SPECIFICATIONS		1	
7	B-300233-2	RESISTOR SPECIFICATIONS		2	
8	B-300233-3	RESISTOR SPECIFICATIONS		1	
9	B-300233-4	RESISTOR SPECIFICATIONS		1	
10	B-300233-5	RESISTOR SPECIFICATIONS		2	
11	B-300233-6	RESISTOR SPECIFICATIONS		1	
12	B-300233-7	RESISTOR SPECIFICATIONS		1	
13	B-300233-8	RESISTOR SPECIFICATIONS		2	
14	B-300233-9	RESISTOR SPECIFICATIONS		2	
15	B-300233-10	RESISTOR SPECIFICATIONS		1	
16	B-300233-11	RESISTOR SPECIFICATIONS		1	
17	B-300233-12	RESISTOR SPECIFICATIONS		1	
18	B-300233-13	RESISTOR SPECIFICATIONS		1	
19	B-300233-14	RESISTOR SPECIFICATIONS		1	
20	B-300233-15	RESISTOR SPECIFICATIONS		1	
21	B-300233-16	RESISTOR SPECIFICATIONS		1	
22	B-300235-1	CAPACITOR SPECIFICATION		1	
23	B-300235-2	CAPACITOR SPECIFICATION		1	
24	B-300235-3	CAPACITOR SPECIFICATION		1	
25	B-300235-4	CAPACITOR SPECIFICATION		2	
26	B-300251-1	RESISTOR SPECIFICATIONS		1	
27	B-300251-2	RESISTOR SPECIFICATIONS		1	
28	B-300251-3	RESISTOR SPECIFICATIONS		1	
29	B-300,252	R. F. CHOKE SPECIFICATIONS		4	
30	C-300,426	OSCILLATOR AMPLIFIER ASSY		1	
31	C-300,427	OSCILLATOR ASSEMBLY		1	
32	C-300,428	AMPLIFIER ASSY.		1	
33	D-300,429	AMPLIFIER CATACOMB		1	
34	B-300,430	AMPLIFIER BASE PLATE ASSY		1	
35	C-300,431	AMPLIFIER BASE PLATE		1	
36	B-300,432	END COVER		1	
37	C-300,433	TUBE CASE, CATACOMB & INSERT ASSY		1	

NOTES:

CONFIDENTIAL
SECRET

~~SECRET~~ CONFIDENTIAL

CONFIDENTIAL ~~SECRET~~

SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L.D. No. B-300482
SHEET 2 OF 2 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: OSCILLATOR - AMPLIFIER ASSEMBLY

ORIGINAL DATE: 30 JUNE 1955

DRAFTSMAN	CHECKER
PROJ. ENGR.	PROJ. ENGR
SUBMITTED BY	CHIEF SEC.
EXAMINED BY	CHIEF ENGR.
APPROVED BY	CHIEF DIV.

REVISIONS — NO. | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1	B-300,434	SHOCK MOUNT TUBE ASSY		1	
2	A-300,435	BALANCE ADJUSTMENT SCREW		1	
3	B-300,436	TUBE COVER		1	
4	A-300,437	TUBE M67		1	
5	C-300,438	TUBE COVER BASE		1	
6	B-300,439	UPPER & LOWER CATACOMB ASSY		1	
7	B-300,440	UPPER CATACOMB ASSY		1	
8	C-300,441	LOOP		1	
9	C-300,442	LOOP BLANK		1	
10	C-300,443	UPPER CATACOMB		1	
11	A-300,444-1	CAPACITOR SPECIFICATIONS		1	
12	A-300,444-2	CAPACITOR SPECIFICATIONS		1	
13	A-300,444-3	CAPACITOR SPECIFICATIONS		1	
14	B-300,445	LOWER CATACOMB ASSY		1	
15	A-300,446	BALANCE TAB, FORMING DETAIL		1	
16	A-300,447	BALANCE TAB, DEVELOPMENT		1	
17	B-300,448	LOWER CATACOMB		1	
18	B-300,449	AMPLIFIER CASE ASSY		1	
19	C-300,450	AMPLIFIER CASE		1	
20	A-300,451	RESISTOR SPECIFICATIONS		1	
21	A-300,452	TUBE 5N892-A		1	
22	A-300,461	DETONATOR LEAD		1	
23	A-504,271	SELENIUM RECTIFIER		1	
24	A-504,257	TUBE 5N891-A		2	
25	B-600,064	SPECIAL MOLD BASE		1	
26	B-600,072	POTTING MOLD, ELECT. HEAD		1	
27	B-300,493	BALL SWITCH LIST OF DWGS.		2	
28	B-300,668	R.F. CHOKE SPECIAL TEST FIXTURE		-	For B-300,852
29					
30					
31					
32					
33					
34					
35					
36					
37					

NOTES:

CONFIDENTIAL

~~SECRET~~

CONFIDENTIAL
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. 8-300483
SHEET 1 OF 2 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: T-2061 POWER SUPPLY, PNS MODEL 62

ORIGINAL DATE:
30 June 55

DRAFTSMAN	CHECKER
PROJ. ENGR.	PROJ ENGR
SUBMITTED BY	CHIEF SEC
EXAMINED BY	CHIEF ENGR
APPROVED BY	CHIEF DIV

REVISIONS: NO. | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASS'Y.	NUMBER REQUIRED TOTAL	REMARKS
1	D300,625	FINAL ASSEMBLY	1		
2	B300,626	CAN-	1		
3	B300,627	LOCKING PIN	1		
4	B300,628	CAN WELDMENT	1		
5	C300,629	HOLDER	1		
6	B300,630	CAN AND HOLDER ASSEMBLY	1		
7	B300,631	TUBE	1		
8	B300,632	SMALL SOLDER RING	1		
9	B300,633	SOLDER MITE	3		
10	B300,634	CAN ASSEMBLY	1		
11	B300,635	LONG LINER	1		
12	B300,636	BOTTOM INSULATOR - THIN	3		
13	B300,637	BOTTOM INSULATOR - THICK	1		
14	B300,638	INTERMEDIATE INSULATOR	5		
15	B300,639	UPPER INSULATOR - ASBESTOS	2		
16	B300,640	SHORT LINER	1		
17	C300,641	INSULATED CAN	1		
18	C300,642	CAN PAD STOCK	-		
19	B300,643	CAN PAD	3		
20	B300,644	ASBESTOS SEPARATOR	3		
21	C300,645	A PAD STOCK	-		
22	B300,646	A PAD	3		
23	C300,647	CELL CUP	1		
24	C300,648	A CARRIER STOCK	-		
25	B300,649	A CARRIER	2		
26	B300,650	A ELECTRODE	1		
27	B300,651	LEAD	2		
28	B300,652	A ELECTRODE ASSEMBLY	1		
29	B300,653	CELL COVER	1		
30	C300,654	CELL ASSEMBLY	2		
31	B300,655	RESISTOR	1		
32	C300,656	DOUBLE CELL ASSEMBLY	1		
33	C300,657	SECTION ASSEMBLY	1		
34	B300,658	LARGE SEPARATOR	1		
35	C300,659	CAN AND SECTION ASSEMBLY	1		
36	C300,660	TERMINAL ELECTRODE	1		
37	B300,661	TERMINAL ELECTRODE ASSEMBLY	1		

NOTES:
SPECIFICATIONS OF LATEST ISSUE APPLY

CONFIDENTIAL
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. 8-300483
SHEET 2 OF 2 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: T-2061 POWER SUPPLY, PNS MODEL 62

ORIGINAL DATE:
30 June 1955

DRAFTSMAN	CHECKER
PROJ. ENGR.	PROJ ENGR
SUBMITTED BY	CHIEF SEC
EXAMINED BY	CHIEF ENGR
APPROVED BY	CHIEF DIV

REVISIONS — NO. | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1	C300,662	B CARRIER STOCK	-		
2	B300,663	B CARRIER	116		
3	C300,664	B ELECTRODE	55		
4	B300,665	B ELECTRODE ASSEMBLY	2		
5	D300,666	HELIX	1		
6	C300,667	B PAD STOCK	-		
7	B300,668	B PAD	9		
8	B300,669	THICK WRAPPER	1		
9	B300,670	THIN WRAPPER	3		
10	D300,671	STACK ASSEMBLY	1		
11	D300,672	CAN AND STACK ASSEMBLY	1		
12	B300,673	PAD SEGMENT	1		
13	B300,674	THICK SPACER	2		
14	B300,675	THIN SPACER	1		
15	B300,676	ASBESTOS BAFFLE	1		
16	B300,677	MICA	1		
17	B300,678	FILLER	3		
18	B300,679	NOTCHED FILLER	4		
19	D300,680	FILLED CAN ASSEMBLY	1		
20	B300,681	COVER	1		
21	B300,682	PLATE	1		
22	B300,683	COVER WELDMENT	1		
23	B300,684	TERMINAL WIRE	3		
24	B300,685	LARGE SOLDER RING	3		
25	B300,686	TERMINAL WIRE	3		
26	B300,687	COVER ASSEMBLY	1		
27	B300,688	TERMINAL SHIELD	1		
28	B300,689	INNER SHIELD	1		
29	B300,690	SHIELDED COVER ASSEMBLY	1		
30	C300,691	UN-ARMED ASSEMBLY	1		
31	B300,692	CUP	1		
32	B300,693	ANVIL	1		
33	B300,694	PRIMER ASSEMBLY	1		
34	B300,695	WIRING DIAGRAM	-		
35	A300,407	BATTERY RETAINER	1		For Battery Assy
36	B300,490	SPACER RING	1		For Battery Assy
37					

NOTES:
SPECIFICATIONS OF LATEST ISSUE APPLY

CONFIDENTIAL
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300484
SHEET 1 OF 4 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: T-2061, SAFETY & ARMING MECHANISM

ORIGINAL DATE: 31 MAY 1955

DRAFTSMAN	CHECKER	REVISIONS	DATE
PROJ. ENGR.	PROJ. ENGR.		SHEET
SUBMITTED BY	CHIEF SEC.		NO.
EXAMINED BY	CHIEF ENGR.		
APPROVED BY	CHIEF DIV.		

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1	B-300,495	T-2061, SAFETY & ARMING MECHANISM ASSY		1	
2	B-300,496	BOTTOM PLATE ASSY		1	
3	B-300,497	BOTTOM PLATE		1	
4	B-300,498	DOWEL PIN (PLATES)		3	
5	B-300,499	ROTOR BARRIER ASSEMBLY		1	
6	B-300,500	BARRIER		1	
7	B-300,501	BARRIER BUSHING		1	
8	B-300,502	BARRIER PIVOT		1	
9	B-300,503	BARRIER SPRING		1	
10	B-300,504	DETONATOR BLOCK ASSY		1	
11	B-300,505	DETONATOR BLOCK		1	
12	B-300,506	OUTER FRAME POST		1	
13	B-300,507	SECTOR PIVOT		1	
14	B-300,508	BARRIER RELEASE PIVOT		1	
15	B-300,509	WEIGHT GUIDE		1	
16	B-300,510	PRIMER STRIKER ASSY		1	
17	B-300,511	PRIMER STRIKER		1	
18	B-300,512	PRIMER STRIKER (DEVELOPMENT)		1	
19	B-300,513	S.D. FIRING PIN		1	
20	B-300,514	PRIMER STRIKER SPRING		1	
21	B-300,515	PRIMER STRIKER SHAFT		1	
22	B-300,516	LEVERLOCK DETENT		1	
23	B-300,517	DETENT SPRING		1	
24	B-300,518	SET BACK WEIGHT ASSY		1	
25	B-300,519	SET BACK WEIGHT		1	
26	B-300,520	ARREST PIN		1	
27	B-300,521	BARRIER LATCH ASSEMBLY		1	
28	B-300,522	BARRIER LATCH		1	
29	B-300,523	BARRIER LATCH (DEVELOPMENT)		1	
30	B-300,524	BARRIER LATCH HUB		1	
31	B-300,525	S.D. LEVERLOCK ASSEMBLY		1	
32	B-300,526	S.D. LEVERLOCK		1	
33	B-300,527	S.D. LEVERLOCK PIVOT		1	
34	B-300,528	INTERLOCK LATCH ASSEMBLY		1	
35	B-300,529	INTERLOCK LATCH		1	
36	B-300,530	INTERLOCK LATCH SHAFT (FIRING PIN RELEASE)		1	
37	B-300,531	INTERLOCK LATCH SPRING		1	

NOTES:

CONFIDENTIAL
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300484
SHEET 2 OF 4 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: T-2061, SAFETY & ARMING MECHANISM

ORIGINAL DATE: 31 MAY 1955

DRAFTSMAN	CHECKER	REVISIONS	DATE
PROJ. ENGR.	PROJ ENGR		SHEET
SUBMITTED BY	CHIEF SEC.		NO.
EXAMINED BY	CHIEF ENGR.		
APPROVED BY	CHIEF DIV.		

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1	B-300,532	TOP PLATE ASSY		1	
2	B-300,533	TOP PLATE		1	
3	B-300,534	TOP PLATE BUSHING		1	
4	B-300,535	OUTER FRAME PLATE ASSY		1	
5	B-300,536	OUTER FRAME PLATE		1	
6	B-300,537	INSULATOR		1	
7	B-300,538	CONDUCTOR		1	
8	B-300,539	CONDUCTOR (DEVELOPMENT)		1	
9	B-300,540	SWITCH ASSY		1	
10	B-300,541	SWITCH BLADE		1	
11	B-300,542	SWITCH BRACKET		1	
12	B-300,543	TERMINAL BRACKET		1	
13	B-300,544	TERMINAL SUB-ASSEMBLY		1	
14	B-300,545	SECTOR DRIVE WEIGHT ASSEMBLY		1	
15	B-300,546	SECTOR WEIGHT		1	
16	B-300,547	SECTOR GEAR		1	
17	B-300,548	AUXILIARY WEIGHT		1	
18	B-300,549	SECTOR HUB (GENEVA LOCK)		1	
19	B-300,550	LATCH PIN		1	
20	B-300,551	KICK PIN		1	
21	C-300,552	S.D. CLOCK ASSEMBLY		1	SEE DTACT ELEMENT (SD), C-300,602
22	B-300,553	S.D. CLOCK PLATE, BOTTOM		1	
23	B-300,554	S.D. CLOCK PLATE, TOP		1	
24	B-300,555	S.D. CLOCK PLATE ASSY		1	
25	B-300,556	STAND OFF		4	
26	B-300,557	S.D. LEVER SHAFT		1	
27	B-300,558	IMPACT SPRING		1	
28	B-300,559	S.D. MAIN DRIVE SPRING		1	
29	B-300,560	S.D. MAIN SHAFT ASSY		1	
30	B-300,561	S.D. MAIN DRIVE GEAR		1	
31	B-300,562	S.D. MAIN SHAFT		1	
32	B-300,563	S.D. MAIN SHAFT BUSHING		1	
33	B-300,564	NO. 1 GEAR ASSY		1	
34	B-300,565	NO. 2 GEAR ASSY		1	
35	B-300,566	ESCAPE WHEEL ASSY		2	
36	B-300,567	PALLET ASSY		2	
37	B-300,568	NO. 3 GEAR ASSY		2	

NOTES:

CONFIDENTIAL
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300484
SHEET 3 OF 4 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: T-2061, SAFETY & ARMING MECHANISM

ORIGINAL DATE:
31 MAY 1955

DRAFTSMAN	CHECKER WLd
PROJ. ENGR. NH	PROJ. ENGR. RG
SUBMITTED BY	CHIEF SEC.
EXAMINED BY	CHIEF ENGR.
APPROVED BY	CHIEF DIV.

REVISIONS: NO. | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1	B-300,569	PALLET		2	
2	B-300,570	PALLET ARBOR		2	
3	B-300,571	NO. 1 PINION		3	
4	B-300,572	NO. 2 PINION		2	
5	B-300,573	ESCAPE WHEEL		2	
6	B-300,574	GEAR NO. 1 & 2		2	
7	B-300,575	GEAR NO. 3		1	
8	B-300,576	S.D. LEVER ASSY		1	
9	B-300,577	S.D. LEVER		1	
10	B-300,578	S.D. LEVER BUSHING		1	
11	B-300,579	S.D. SPRING STUD		1	
12	B-300,580	S.D. LEVER SPRING		1	
13	B-300,581	IMPACT LEVER ASSY		1	
14	B-300,582	IMPACT LEVER		1	
15	B-300,583	IMPACT WEIGHT		1	
16	B-300,584	IMPACT WEIGHT STUD		1	
17	B-300,585	IMPACT LEVER BUSHING		1	
18	B-300,586	PRIMER STRIKER STOP		1	
19	B-300,587	S.D. LEVERLOCK SPRING		1	
20	B-300,588	DELAY TRAIN ASSY		1	
21	B-300,589	DELAY CLOCK PLATE ASSY		1	
22	B-300,590	DELAY CLOCK PLATE		1	
23	B-300,591	FIRING PIN (BATTERY STRIKER)		1	
24	B-300,592	FIRING PIN SPRING		1	
25	B-300,593	BATTERY STRIKER		1	
26	B-300,594	SETBACK SPRING		1	
27	B-300,595	GROUNDING CLIP		1	
28	B-300,596	S.D. MAIN DRIVE GEAR, BASIC GEAR DATA		1	
29	B-300,597	GEAR NO. 1 & 2, BASIC GEAR DATA		1	
30	B-300,598	GEAR NO. 3, BASIC GEAR DATA		1	
31	B-300,599	SECTOR GEAR, BASIC GEAR DATA		1	
32	B-300,600	PINION GEAR, BASIC GEAR DATA		1	
33	B-300,605	DETONATOR RETAINER		1	
34	B-300,375	PRIMER RETAINER		1	
35					
36					
37					

NOTES:

[redacted]

SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300484
SHEET 4 OF 4 SHEETS

ORIGINAL DATE:

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: T-2061, SAFETY & ARMING MECHANISM

DRAFTSMAN | CHECKER
PROJ ENGR | PROJ ENGR
SUBMITTED BY | CHIEF SEC
EXAMINED BY | CHIEF ENGR
APPROVED BY | CHIEF DIV

REVISIONS: NO | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1		IMPACT ELEMENT ASSEMBLY			
2	C-300,601	IMPACT ELEMENT ASSEMBLY		1	
3	B-300,602	BUFFER BRACKET		1	
4	B-300,603	STAND OFF		1	
5	B-300,604	SPACER		1	
6	B-300,561	IMPACT LEVER ASSY		1	
7	B-300,558	IMPACT SPRING		1	
8	B-300,555	S.D. CLOCK PLATE ASSY		1	
9	B-300,553	S. D. CLOCK PLATE (BOTTOM)		1	
10					
11		MECHANICAL COMMERCIAL PARTS			
12		Tinnerman Products, Cleveland, Ohio, Tabular Clip C2733-051-2			
13		or Equal		1	For B-300,532 (Top Plate Assy)
14		Flat Flanged Eyelet, A1486		7	
15		Flat Flanged Eyelet, A1523		1	For B-300,540 Switch Assy.
16		Edwin B. Stimpson Co.Inc. Brooklyn, N.Y. or Equal			
17		Retaining Ring Type-E, 5133-6-S		1	B-300,515
18		Retaining Ring, Type-E, 5133-9-S		8	B-300,557, B-300,508
19		Waldes Kohinoor Inc. Long Island City, N.Y. or Equal			
20		Lockwasher, Type 19 Internal Tooth For No. 2 Screw,		6	For C-300,552, B-300,508 & B-300,535
21		"Shakeproof" or Equal			
22		Roll Pin, Elastic Stop Nut Corp., New Jersey or Equal		2	
23		No. 4-40 NC-2, 1/4"-Long, Flat Head Mach. Screw Cadmium Plate		1	For B-300,496
24		No. 3-48 NC-2, 3/16"-Long, Flat Head Mach. Screw Cadmium Plate		3	For B-300,532 & B-300,496
25		No. 2-56 NC-2, 7/16"-Long, Round Head Mach. Screw Cadmium Plate		3	For C-300,552 & B-300,508
26		No. 2-56 NC-2, 1/4"-Long, Round Head Mach. Screw Cadmium		2	For B-300,535
27		No. 2-56 NC-2, 1/8"-Long, Binding Head Mach. Screw Cadmium Plate		1	For B-300,595
28		No. 2-56 NC-2, 7/16"-Long, Fillister Head Mach. Screw Cadmium		1	For C-300,552
29		Plate			
30		No. 2-56 NC, 3/16"-Long, Fillister Head Mach. Screw Cadmium		1	For B-300,540
31		Plate			
32					
33		SPECIFICATIONS OF LATEST ISSUE APPLY			
34					
35					
36					
37					

NOTES:

[redacted]

UNCLASSIFIED
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300485
SHEET 1 OF 1 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: ARMING CHAMBER

ORIGINAL DATE: 31 MAY 1955

DRAFTSMAN	CHECKER NLR
PROJ. ENGR. NLR	PROJ ENGR RE
SUBMITTED BY	CHIEF SEC RE
EXAMINED BY	CHIEF ENGR
APPROVED BY	CHIEF DIV

REVISIONS: NO. | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1	C-300,411	ARMING CHAMBER WELDMENT	1		
2	C-300,412	BASE	1		
3	C-300,413	ARMING CHAMBER	1		
4	B-300,414	BAFFLE SUPPORT	1		
5	B-300,415	BAFFLE	1		
6	B-300,416	S. D. SELECTOR BARREL	1		
7	B-300,417	S. D. SELECTOR	1		
8	A-300,418	DOWEL PIN (LONG)	1		
9	A-300,419	DOWEL PIN (SHORT)	1		
10	A-300,423	PAD	1		
11	C-300,425	SLEEVE	1		
12	A-300,463	S. D. SELECTOR LIMIT PIN	1		
13	C-300,464	ARMING CHAMBER ASS'Y	1		
14	B-300,491	CAP	1		
15	B-300,619	GAGE 1.3765 "Go" & 1.3870 "No Go"	1		For C-300,411
16	B-300,620	GAGE .4845, 1.7155 "Go" & .4915., 1.7358 "No Go"	1		For C-300,411
17	B-300,621	GAGE 45° & 127° ANGULAR RELATIONSHIP	1		For C-300,411
18					
19					
20		MECHANICAL COMMERCIAL PARTS			
21		Precision Rubber Products Corp.			
22		"O Rings" Dayton 7, Ohio, or Equal			
23					
24		"O" Ring No. 902 1/2 - 1/16 I.D. x 1/8 O.D. x 1/32	1		
25		"O" Ring No. 414 - 41 - 2 5/16 I.D. x 2 1/2 O.D. x 3/32	1		
26					
27		Truarc Retaining Ring, Waldes Kohinoor Inc.			
28		Long Island City, New York, or Equal			
29		Retaining Ring No. 5103 - 12-C Beryllium Copper	1		
30					
31		NOTE			
32		SPECIFICATIONS OF LATEST ISSUE APPLY			
33					
34					
35					
36					
37					

NOTES:

UNCLASSIFIED
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300,486
SHEET 1 OF 1 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: T-97 STAB PRIMER

ORIGINAL DATE:
31 MAY 1955

DRAFTSMAN	CHECKER
PROJ. ENGR.	PROJ. ENGR.
SUBMITTED BY	CHIEF SEC.
EXAMINED BY	CHIEF ENGR.
APPROVED BY	CHIEF DIV.

REVISIONS

NO	SHEET	DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASS'Y.	NUMBER REQUIRED TOTAL	REMARKS
1	B-300,369	T-97 STAB PRIMER	1		
2	A-300,370	[illegible]	1		
3	A-300,371	[illegible]	1		
4	A-300,372	PRIMER CUP	1		
5	A-300,492	PRIMER FIXTURE	1		
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18		SPECIFICATIONS OF LATEST ISSUE APPLY			
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

NOTES:

UNCLASSIFIED
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. 8-300,487
SHEET 1 OF 1 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: LEAD CHARGE

ORIGINAL DATE:
31 MAY 1955

DRAFTSMAN	CHECKER
PROJ. ENGR.	PROJ ENGR
SUBMITTED BY	CHIEF SEC
EXAMINED BY	CHIEF ENGR
APPROVED BY	CHIEF DIV

REVISIONS: NO. | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASS'Y.	NUMBER REQUIRED TOTAL	REMARKS
1	A-300,373	LEAD CHARGE ASS'Y	1		
2	A-300,374	CUP	1		
3					
4					
5					
6					
7					
8					
9					
10					
11		SPECIFICATION OF LATEST ISSUE APPLY			
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

NOTES:

UNCLASSIFIED
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300493
SHEET 1 OF 1 SHEETS

ORIGINAL DATE:
31 MAY 1955

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: BALL SWITCH

DRAFTSMAN	CHECKER	REVISIONS	NO. / SHEET / DATE
PROJ. ENGR.	PROJ. ENGR.		
SUBMITTED BY	CHIEF SEC.		
EXAMINED BY	CHIEF ENGR.		
APPROVED BY	CHIEF DIV.		

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASS'Y.	NUMBER REQUIRED TOTAL	REMARKS
1	C-300,160	BALL SWITCH ASSEMBLY		1	
2	B-300,161	SWITCH HOUSING ASSEMBLY		1	
3	A-300,162	INSULATOR ASSEMBLY		1	
4	B-300,163	SWITCH HOUSING		1	
5	A-300,164	WIRE LEAD		1	
6	A-300,165	INSULATOR		1	
7	B-300,166	TERMINAL		1	
8	A-300,167	TABULAR RIVET		2	
9					
10					
11					
12					
13					
14					
15					
16		SPECIFICATION OF LATEST ISSUE APPLY			
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

NOTES:

UNCLASSIFIED
SECURITY INFORMATION

DIAMOND ORDNANCE FUZE LABORATORY
PROJECTILE FUZE LABORATORY

L. D. No. B-300494
SHEET 1 OF 1 SHEETS

LIST OF DRAWINGS, PARTS AND SPECIFICATIONS

FOR: SPECIAL TOOLS FOR T-206l FUZE ASSEMBLY

ORIGINAL DATE: 31 JUNE 1955

DRAFTSMAN	CHECKER
PROJ ENGR	PROJ ENGR
SUBMITTED BY	CHIEF SEC.
EXAMINED BY	CHIEF ENGR.
APPROVED BY	CHIEF DIV.

REVISIONS: NO. | SHEET | DATE

LINE NO.	DRAWING NUMBER	NOMENCLATURE	NUMBER REQUIRED PER ASSY.	NUMBER REQUIRED TOTAL	REMARKS
1	C-300,606	BATTERY RETAINER RING ASSY FIXTURE		1	
2	B-300,460	BATTERY JACK ASSY		1	
3	B-300,459	BATTERY JACK		1	
4	B-300,458	PRESSURE PAD		1	
5	B-300,457	JACK SCREW SUB-ASSY		1	
6	B-300,456	JACK SCREW		1	
7	B-300,455	HANDLE		1	
8					
9		S & A LOADING FIXTURE & TOOLS			
10					
11	C-300,607	T-97 LOADING FIXTURE		1	For B-300,375
12	B-300,608	RAM FOR BATTERY STRIKER		1	For B-300,593
13	B-300,609	T-108 DRIVER RETAINER RING LOADING TOOL		1	For A-300,375
14	B-300,610	DUMMY DETONATOR PLUG		1	For D-300,505
15	B-300,611	T-108 RETAINING RING EXTRACTOR TOOL		1	For A-300,375
16	B-300,612	RECTAINING FIXTURE FOR DRIVER STRIKER ARM		1	For E-300,511
17	C-300,613	CRADLE FOR S & A MECH., LOADING OF T-108		1	For E-300,495
18	B-300,614	LEVERLOCK DETENT DEPRESSOR		1	For B-300,516
19	B-300,615	FIRING PIN DEPRESSOR		1	For B-300,519
20	B-300,616	S. D. CLOCK WINDING KEY		1	For C-300,552
21	B-300,617	ARMING SLEEVE WRENCH		1	For C-300,425
22	B-300,618	ARMING CHAMBER WRENCH		1	For C-300,411
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

NOTES:

DISTRIBUTION

Copies	1 -	10	ORDTA
		11	ORDIM
		12	ORDTU
	13 -	14	Navy BuOrd, Re2b - Comdr. W. B. Rodman
		15	USAF Headquarters
		16	ARDC (Baltimore)
	17 -	18	Wright Air Development Center - WCEGO
		19	Wright Air Development Center - WCLGW
	20 -	22	VT Fuze Division, NOL - Mr. R. C. Daniel
		23	Naval Ordnance Testing Station - Attn: Code 40
		24	AFAC, Eglin Field - Commanding Officer
		25	Redstone Arsenal - Commanding General
		26	Eastman Kodak - Dr. Totter
		27	Airborne Instruments Lab - Dr. Skifter
		28	Emerson Radio and Phonograph Corp - Mr. Berkoff
		29	University of Florida - Mr. Tedder
		30	Hinman 01.2
		31	Guarino 20.0
		32	Laboratory 40 Library
		33	Kalmus 50.0
		34	Lapham 21.0
		35	Rubinowitz 22.0
		36	Godfrey 23.0
		37	Fraumann 61.0
		38	Williams 21.3
		39	Oertel 21.1
		40	Scillian 22.4
		41	Ebner 22.6
		42	Vorkink 20.02
	43 -	44	DOFL Library
	45 -	48	DOFL File 06.3

To Contractors who are furnished this Report:

This report is on loan only and must be returned to the Government agency from which it was received upon completion of the contract(s) to which this material pertains.

This document contains information affecting the national defense of the United States within the meaning of the espionage laws, title, 18 U. S. C., 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.